INSTRUMENTS AND CONTROL SYSTEMS 1962 BUYERS' GUIDE

Part Two of Two-Part October 1961 Issue of Instruments and Control Systems

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PART TWO CONTENTS

Introduction ... page 3
Product Index ... page 4
Catalog 1—Industrial Control Instrumentation ... page 15
Catalog 2—Data Handling and Recording ... page 87
Catalog 3—Electrical/Electronic Instruments ... page 101
Catalog 4—Analytical/Laboratory Instrumentation ... page 127
Catalog 5—Land, Sea, Air Systems and Devices ... page 138
Catalog 6—Physical Properties Test Equipment ... page 141
Catalog 7—General Engineering Instruments ... page 150
Catalog 8—Measurement and Control Components ... page 153
Catalog 9—Machines/Materials ... page 191
Directory of Manufacturers ... page 207

ADVERTISERS' INDEX

This Index is published as a service to the subscribers. Every care is taken to make it complete and accurate, but ICS assumes no responsibility for errors or omissions.

A

ARCCO Instrument Company, Inc. ... 57
Ad-Yu Electronics Lab., Inc. ... 114
Aero Research Instrument Company, Inc. ... 206
Airborne Accessories Corporation, Electronics Division ... 178
Alnor Instrument Co., Division of Illinois Testing Laboratories, Inc. ... 63
Alteneder & Sons, Theo. ... 151
American Laubscher Corporation ... 200
American Machine & Metals, Inc., United States Gauge Division ... 45
American Meter Company Incorporated ... 198
American Research Corp. ... 27
American Thermo-Electric Co. ... 186
Amglo Corporation ... 131, 169, 189
Amperite ... 179
Amthor Testing Instrument Co., Inc. ... 147
Analytical Measurements, Inc. ... 42
Anetsberger Brothers, Inc ... 26
Annis Company, R. B. ... 209
Arens Controls, Inc. ... 161
Aristo Grid Lamp Products Inc. ... 131
Askania-Werke ... 134
Associated Control Equipment, Inc. ... 50, 52, 53, 183
Associated Research, Incorporated ... 111
Associated Specialties Co. ... 115
Astra Corporation ... 46
Automatic Switch Co. ... 83
Automatic Timing & Controls, Inc. ... 19, 24, 74, 174
Avins Industrial Products Corporation ... 201

B

Bacharach Industrial Instrument Co. ... 66
Bailey Meter Company ... 17, 18, 19, 28, 29, 34, 38, 39, 44, 49, 54, 56, 65, 89, 92, 163, 179
Baranoff & Assoc., A. J. ... 22
Bayley Instrument Co. ... 210
Beck Company, Harold ... 76
Bell Corp. ... 24
Bell & Gossett Company ... 17
Biddle Co., James G. ... 59, 106, 108, 110
Bin-Dicator Co. ... 36
Bird & Co., Inc., Richard H. ... 155, 167
Boulin Instrument Corporation ... 56, 147
Bristol Company ... 19, 42, 44, 52, 55, 60, 68, 69, 72, 115, 173
Bud Radio, Inc. ... 193
Buff and Buff Mfg. Co. ... 211
Building Blocks Electronic Co. ... 114
Burgess Battery Company ... 154
Burling Instrument Co. ... 61

C

Calibration Standards Corporation ... 124
Carlson Company ... 146
Cast Optics Corporation ... 163
Chicago Miniature Lamp Works ... 139
Chrono-Log Corporation ... 89
Circon Component Corporation ... 172
Colonial Kolonite Co. ... 201
Comar Electric ... 177
Computer Instruments Corp ... 93, 165
Conant Laboratories ... 182
Conoflow Corporation ... 44, 50, 77, 80
Control Indicating Corporation ... 65
Cox Instruments Division George L. Nankervis Company ... 129
Cratex Manufacturing Company, Inc. ... 192
Crawford Fitting Company ... IBC
Crescent Insulated Wire & Cable Co. Inc. ... 202
Crystal Glass Tube & Cylinder Co. ... 195

D

Davidson Optronics, Inc. ... 142
Davis Instruments ... 33
Del Electronics Corporation ... 119
Delavan Manufacturing Company ... 37
Derbyshire, Inc., F. W. ... 197
Dialight Corporation ... 173
Dice Company, J. W. ... 143
Dillon & Company, Inc., W. C. ... 72, 145, 147, 148, 149
Dimco-Gray Company ... 215
Disc Instruments, Inc. ... 94
Drake Manufacturing Company ... 174
Ducommun Co., M. ... 215
Durant Manufacturing Company. ... 22
Dyna-Empire Inc. ... 113
Dynage, Inc. ... 118, 119
Dynisco Division of American Brake Shoe Company ... 49

E

Edal Industries, Inc. ... 119
Eder Instrument Co. ... 143

ADVERTISERS' INDEX

El Products Corp. 216
Electro Development Co. 182
Electro Switch Corp. 184
Ellis Associates 58
Emery Co., A. H. 86
Empro Manufacturing Co. 122
Epic Inc. 58
Eppley Laboratory, Inc. .... IFC, 122
Esterline Angus Instrument Company, Inc. 97
Ewald Instruments 218
Exactel Instrument Company 40, 41

F

Farmer Electric Products Company, Incorporated .. 175
Federal Screw Products, Inc. 194
Fenwal Electronics 187
Fielden Electronics, Inc. 38, 65
Fischer & Porter Company 14
Fish-Schurman Corp. 164
Frontier Electronics Co. 108
Fulton Sylphon Division,
  Robertshaw-Fulton Controls Company 62

G

Gatti Inc., Aurele M. 155
Geier & Bluhm, Inc. 152
Gelman Instrument Company 128
General Electric Company 30, 31, 90, 91, 107
General Time Corporation,
  Electronic Systems Division 95
Gillen Company, John 198
Golden Anderson Valve Specialty Company ... 82
Gow-Mac Instrument Company 128
Graphic Controls Corporation 158
Green Instrument Co., Inc. 196
Greibach Instruments Corporation 102
Griebel Company, E. 220
Grove Valve and Regulator Company 50
Gubelman Charts
  Div. of Nashua Corporation 157
Gurley, W. & L. E. 171
Gustafson Mfg. Co., G. D. 220

H

H. J. J. Company 200
Hagan Chemicals & Controls, Inc. 17, 18, 19,
  .... 21, 29, 44, 50, 55, 60, 61, 62, 162
Hankison Corporation 16
Hasler-Tel Co., Inc. 58
Hass Instrument Corporation 51
Hastings-Raydist, Inc. 76
Heise Bourdon Tube Company, Inc. 48
Heitz Inc., Karl 88
Hoskins Manufacturing Company 190
Houston Instrument Corporation 115, 126
Hughes Co., Inc., Kenneth E. 173

I

Ideal-Aerosmith
  A Division of Royal Industries, Inc. 43
Indiana General Corporation,
  Indiana Steel Products Division 168
Industrial Electronic Engineers Inc. 89, 93
Industrial Instruments Inc. 18, 34, 104,
  105, 110, 136, 140, 160, 161, 222
Industrial Test Equipment Co. 114
Instrumentation Associates 33
Interelectronics Corp. 116
International Telephone and
  Telegraph Corporation 84

J

Jaegers, A. 171
Jaidinger Mfg. Co. Inc. 180
Jamesbury Corp. 81
Jo-Bell Products, Inc. 38
Johnson Engineering Co., Inc., Welton V. 199
Johnson Service Company 64
Jones Optical Works, A. D. 170

K

Keller, Jr., Hugo P. 166
Kemp Manufacturing Company, C. M. 26
Kensico Tube Company Division,
  Robinson Technical Products, Inc. 23
King Engineering Corporation 40
Kingsley Machine Co. 196
Kistler Instrument Corp. 150
Kunkle Valve Co., Inc. 46
Kurman Electric Co. 175

L

Landsverk Electrometer Company 135
LaVezzi Machine Works 93
Lavoie Laboratories, Inc. 100
Lepel High Frequency Laboratories, Inc. 195
Leslie Co. 76
Lewis Engineering Co. 71
Levy & Company, Inc., Max 199
Liquidometer Corp. 39
Loe Engineering Co. 77, 130
Ludlow Papers,
  A Division of Ludlow Corporation 157
Luxo Lamp Corporation 170
Lynn, Robert M. 225

M

MM Enclosures, Inc. 156
Mack Electric Devices, Inc. 174
Magnetrol, Inc. 38
Mansfield & Green Inc. 52
Marsh Instrument Company, Div. of Colorado
  Oil and Gas Corporation 46
Marshalltown Mfg., Inc. 46
Martin-Decker Corporation 53
Marx Co., Clarence J. 59
Maryland Telecommunications, Inc. 61
Mason Instrument Co., Inc. 226
Mason-Neilan Division of
  Worthington Corporation 20, 21
Mayer Co., Inc., George J. 170
Measurements, a McGraw-Edison Division 109
Mercoid Corporation 183
Meriam Instrument Company 32, 41
Metavac, Inc. 181
Mettler Instrument Corporation 86
Mid-West Instrument Div.,
  Astra Associates Inc. 51
Midwestern Instruments 92
Mine Safety Appliances Company 34
Minneapolis-Honeywell,
  Industrial Products Group .... FC, BC
Moeller Instrument Company, Inc. 70
Moore & Co., Samuel 203
Moser Jewel Company 166
Motech Co. 66

N

Nanmac Corporation 68
Nankervis Company, George L.,
  Cox Instruments Division 129
National Instrument Laboratories 28
National Tel-Tronics Corporation 165
New Hermes Engraving Machine Corp. 197
Newark Electronics Corporation 177
Norcross Corporation 85
North Hills Electronics, Incorporated 118
Nuclear Measurements Corp. 136

O

OK Machine & Tool Corporation 132
Olympic Instruments, Inc. 143
Opad Electric Company 121
Operating & Maintenance Specialties 51
Ophthos Instrument Co. 131
Opto-Metrics Tools, Inc. 145

P

P-W Industries 228
Palmer Thermometers, Inc. 73
Panduit Corp. 192
Parabam, Division of
  Houston Fearless Corporation 88, 110
Parko Electronics Co. 180
Penn Optical Incorporated 146
Pennwood Numechron Co. 88
Perfection Mica Company,
  Magnetic Shield Division 167
Permag Corp. 169
Philadelphia Scientific Glass Co. 230
Physics Research Laboratories Inc. 103
Pollak Corp., Joseph 176
Power Designs Inc. 117
Powertron Ultrasonics Corp. 28, 183
Premier Metal Products Co. 172
Pyramid Plastics, Inc. 204
Pyrometer Instrument Co. 54

R

Racine & Company, Inc., Jules 151
Ramm Rectifier Co., Inc. 120
Rapid Electric Company, Inc. 116
Rawson Electrical Instrument Co. 123
Renick Co., L. C. 181
Research Appliance Company 137
Rex Rheostat Co. 232
Richco Plastic Co. 204
Richter Cine Equipment 142
Rochester Instrument Systems Incorporated 42
Rogan Brothers, Inc. 165
Rotron Controls Division of
  Rotron Mfg. Co., Inc. 33
Royson Engineering 233

S

Sanborn Company 98, 99
Saxonburg Ceramics, Inc. 194
Schwarzer Company 94
Security Valve Company 78
Seegers Instrument Company, Inc. 149
Serdex Incorporated 35
Servometer Corporation 155
Shore Instrument & Mfg. Co., Inc. 145
Simpson Optical Manufacturing Company 171
Smith Thermotronics, Inc. 66, 206
Special Screw Products Company 164
Spellman High Voltage Company 116
Spence Engineering Company, Inc. 79
Sprague Electric Co.,
  Special Products Division 188
Standard Cabinet Company Inc. 27
States Company 180
Stewart Corp., F. W. 200
Sticht Co., Inc., Herman H. 59, 108, 110
Sturtevant Co., P. A. 148

T

Technical Apparatus Builders 120
Tensor Electric Development Company, Inc. 185
Testing Machines Inc. 148
Thermco Instrument Corporation 35
Thermo Electric Co., Inc. 53, 61, 67,
  104, 182, 205, 236
Tiffen Optical Co. 170
Tri-R Instruments 72
Trinity Equipment Corporation 25, 74

U

Uehling Instrument Company 240
Ultrasonic Industries Inc. 192
Ultronic Systems Corp. 88
Unertl Optical Co., John 132
Unholtz-Dickie Corporation 85
Unilectron Inc. 60
United States Gauge Division,
  American Machine & Metals, Inc. 45
Universal Relay Corp. 176

V

Vacuum Instrument Corporation 75
Valpey Crystal Corp. 112, 162
Van Products Co. 26
Vector Electronic Co., Inc. 159
VecTrol Engineering, Inc.
  A Subsidiary of Sprague Electric Co. 120
Verdell Instrument Sales Co. 237

W

Wallace & Tiernan, Inc. 47
Warrick Co., Charles F. 36
Waugh Engineering Division, Foxboro Company .. 32
Weckesser Company, Inc. 195
Weighing & Controls, Inc., Trans-Weigh Company,
  Subsidiaries of CompuDyne Corporation 36
Weksler Instruments Corp. 68, 69
West Instrument Corporation 67
Wilkerson Corporation 16
Worley Jewel Co., John 166

Y

Yokogawa Electric Works, Inc. 125

Z

Zeiss, Inc., Carl 133, 144
Zeks Industries, Inc. 16
Zenith Electric Co. 75
Zernickow Co., O. 58

about this

INSTRUMENTS AND CONTROL SYSTEMS

1962 BUYERS' GUIDE

THIS 19th edition of the Guide is designed to make it more useful to you, the buyer of instruments and devices for measurement, inspection, testing, analysis, computing and automatic control.

About 3200 companies cooperated to make this edition possible. Their returned questionnaires provide the basis for all the listings herein. Some 300 companies, by advertising herein, further supported this guide to all industry buyers of instruments, controls, systems, components and accessories.

In using this directory, you are urged to consult the advertisements. They're positioned to enable your quick reference—they contain valuable data which can save you time and correspondence in product selection and procurement.

The division of the main index section into nine separate departments enables more rapid location of suppliers products peculiar to particular applications. The Table of Contents on page one lists all of the separate sections and their locations. A "title page" at the beginning of each section describes the type of equipment covered.

A complete Product Index, starting on page 4, contains all of the headings which appear in the nine catalog sections, plus "reference" headings to aid in location of specific items.

Recommended procedure for using the 1962 Buyers' Guide suggests that you look first in the *Product Index* (page 4) for the specific item in which you are interested—then turn to the catalog to which that item directs you.

To find the *addresses* of the manufacturers and suppliers, then turn to the Directory of Manufacturers, at the back of the book. It will pay to contact more than one of the companies listed as sources for the item desired, as each has its specialties and specialized features.

Another feature designed to facilitate your buying activities—manufacturers' telephone numbers are included with their listings in the Directory of Manufacturers. Where no number is listed, none was provided by the manufacturer.

Another valuable feature—Manufacturers' Representatives and sales offices are listed for those reps and manufacturers who purchased this service. It helps you find close-to-home sources of supply, service, and information.

Throughout this directory, listings are by *basic variable*. Therefore, look for "pressure," "temperature," "flow," etc. DO NOT look for "instruments," "gages," "meters," "indicators," etc. An exception to this is the listing of certain general-purpose devices, such as "recorders."

This 1962 I&CS Buyers' Guide provides you a more complete and serviceable directory than any previous edition. But . . . a few omissions will no doubt come to light. Your editors would much appreciate your reporting these so that the next edition may be that much closer to perfection.

PRODUCT INDEX

This PRODUCT INDEX will help you find the product listings in the several catalogs. All products are listed here in alphabetical order. First find the product in which you are interested; directly under the product you will see a catalog numbr. Turn to this catalog to find the names of the firms making that product. When you have the company names, turn to pages 207 to 239 to find the addresses for the companies.

ABRASION MACHINES and TESTERS (Cat. 6)

ABRASIVES, Rubberized (Cat. 9)

ABSORPTIONMETERS (Cat. 4)

ACCELERATORS, Linear and Rotational (Cat. 6)

ACCELEROMETERS, Linear (Cat. 7)

ACCELEROMETERS, Rotational (Cat. 7)

ACIDIMETERS, see pH (Cat. 1)

ACOUSTIC STANDARDS, see Standards, Acoustic (Cat. 3)

ACOUSTIMETERS, see Sound Indicators (Cat. 3)

ADHESION TESTERS, including Glue-Testers (Cat. 6)

AEROGRAPHS (Cat. 5)

AEROMETERS (Cat. 5)

AGATE and AGATE SPECIALTIES, including Bearings, Styli (Cat. 9)

AIR ANALYSIS APPARATUS, see Air Pollution, also Air Particle Size (Cat. 4), also Gas Analyzers, Air (Cat. 1)

AIR CLEANERS, Instrument (Cat. 1)

AIR COMPRESSORS, Instrument (Cat. 1)

AIR DRYERS, INSTRUMENT, see Dryers, Air- or Gas, also Air Cleaners (Cat. 1)

AIR FLOWMETERS, see Anemometers (Cat. 4), also Flowmeters (Cat. 1)

AIR PARTICLE SIZE INSTRUMENTS—Cat. 4, (see also Particle Instruments—Cat. 4)

AIR POLLUTION INSTRUMENTS, including Samplers (Cat. 4)

AIR VELOCITY METERS, see Anemometers (Cat. 4), also Aircraft Instruments (Cat. 5)

AIRCRAFT FLIGHT ANALYZERS (Cat. 5)

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AIRCRAFT POWER PLANT INSTRUMENTS (Cat. 5)

AIRPLANE CONTROLS, including Movement Recorders (Cat. 5)

AIRPORT INSTRUMENTS, see Aviation Instruments, Ground (Cat. 5)

AIRSPEED INDICATORS, see Aircraft Instruments (Cat. 5)

ALARM GAGES, see Pressure Gages with Alarms (Cat. 1)

ALARMS, Bearing Temperature, see Bearing Temperature Instruments (Cat. 1)

ALARMS, Bin Level, see Level Control, Bin (Cat. 1)

ALARMS, Carbon Bisulphide, see Gas Analyzers (Cat. 1)

ALARMS, Carbon Monoxide, Combustible Gas, etc., see Gas Analyzers (Cat. 1)

ALARMS, High/low Water, see Level Controllers, Liquid (Cat. 1)

ALARMS, Hydrogen Sulphide, see Gas Analyzers (Cat. 1)

ALARMS, Inflammable Gas, see Gas Analyzers (Cat. 1)

ALARMS, Radiation, see Radiation Alarms (Cat. 7)

ALARMS, Smoke, see Smoke Density Indicators, Recorders (Cat. 1)

ALIDADES, see Surveying Instruments (Cat. 7)

ALLOYS, Compensator, see Alloys, Temperature (Cat. 9)

ALLOYS, Glass Sealing (Cat. 9)

ALLOYS, High Permeability including Hipernik, Mu-metals, Permalloy, etc. (Cat. 9)

ALLOYS, Temperature Compensator (Cat. 9)

ALTIMETERS, see Barometers, Altitude (Cat. 7)

ALTIMETERS, Surveying, see Barometers (Cat. 7)

ALTIMETER TESTERS, see Aircraft Instruments (Cat. 5)

ALTITUDE BAROMETERS, see Barometers, Altitude (Cat. 7)

ALTITUDE GAGES (Boiler), see Boiler Room Instruments (Cat. 1)

ALUMINUM FRAMES for Small Moving Coils (Cat. 9)

AMMETERS, AC and/or DC, Single or Multi-range, Indicating, Clamp Type, Contact-making, Laboratory Standard, Recording, Split Core (Cat. 3)

AMMETERS, Micro-ammeters and Milli-ammeters (Cat. 3)

AMMONIA ANALYZERS, see Gas Analyzers (Cat. 1)

AMPEREHOUR METERS (Cat. 3)

AMPLIFIERS, Audio Frequency, Chopper, DC, Logarithmic, Magnetic, including Saturable Reactors, Miscellaneous, including Geophysical, Nucleonic, Strain-gage Oscillograph, etc., Servo, Wideband (Cat. 3)

AMPLIFIERS, Vibration, see Vibration Instruments (Cat. 1)

ANALYTICAL INSTRUMENTS (Cat. 4)

ANALYZERS, Boiling Point, see Boiling Point, Vapor-pressure Analyzers (Cat. 6)

ANALYZERS, Chemical Composition, see Analytical Instruments (Cat. 4)

ANALYZERS, Electric Wave, see Spectrum Analyzers (Cat. 3)

ANALYZERS, Electronic Circuit, see Circuit Testers (Cat. 3)

ANALYZERS, Flight, see Navigation Aids (Cat. 5)

ANALYZERS, Ignition System, see Engine Test Instruments (Cat. 6)

ANALYZERS, Industrial Circuit, see Circuit Analyzers, Industrial (Cat. 3)

ANALYZERS, Industrial Power, see Electric Power (Cat. 3)

ANALYZERS, Infrared, see Analytical Instruments, also Spectrometers, (Cat. 4)

ANALYZERS, Nitric Oxide, see Gas Analyzers (Cat. 1)

ANALYZERS, Oxygen, see Gas Analyzers (Cat. 1)

ANALYZERS, Radio Set, see Circuit Testers (Cat. 3)

ANALYZERS, Sound, see Sound (Cat. 3)

ANALYZERS, Spectrum see Spectrum Analyzers (Cat. 3)

ANEMOMETERS, Hotwire (Cat. 4)

ANNUNCIATORS, see Monitors (Cat. 1)

ANTENNAS (Cat. 8)

APPARATUS, Vacuum, see Vacuum Apparatus (Cat. 1)

AREA METERS, see Flowmeter, Area (Cat. 1)

ANEMOMETERS, Mechanical (Cat. 7)

ARTIFICIAL Horizons, see Aircraft Instruments (Cat. 5)

ASPHALT TESTING APPARATUS, inluding Penetration Needles (Cat. 6)

ASSEMBLIES, Instrument (Cat. 8)

ASTRONOMICAL INSTRUMENTS (Cat. 7)

ATTENUATORS (Cat. 8)

AUDIO-FREQUENCY EQUIPMENT (Cat. 3)

AUDIO-FREQUENCY OSCILLATORS, see Oscillators, Audio-Frequency (Cat. 3)

AUTOCLAVES, High Pressure (Cat. 4)

AUTO-COLLIMATORS (Cat. 6)

AUTOTRANSFORMERS, see Transformers, Variable (Cat. 8)

AVIATION, Airborne, see Aircraft Instruments (Cat. 5)

AVIATION INSTRUMENTS, Ground (Cat. 5)

AZIMUTH INSTRUMENTS, see Navigation Aids (Cat. 5)

BALANCES, Analytical and Precision for Weights and Measures, including Automatic Recording, Gas Density and Specific Gravity, Hydrostatic, Micro, Surface Tension, Westphal (Cat. 4)

BALANCES, Magnetic (Cat. 7)

BALANCING MACHINES, Dynamic (Cat. 6)

BALANCING MACHINES, Static (Cat. 6)

BALLISTIC INSTRUMENTS, Electrical (Cat. 5)

BALL VALVES, see Valves (Cat. 1)

BALLISTIC INSTRUMENTS, Ordnance, see Ordnance (Cat. 5)

BALLS, Bronze, Monel, etc. (Cat. 8)

BALLS, Glass (Cat. 8)

BALLS, Precision, Sapphire, Ruby Carbide (Cat. 8)

BALLS, Stainless Steel and/or Steel, Polished (0.5mm min. dia.) (Cat. 8)

BALSAM (Cat. 9)

BANK and TURN INDICATORS, see Aircraft Instruments (Cat. 5)

BAROGRAPHS, see Barometers, Recording (Cat. 7)

BAROMETERS, Altitude (Cat. 7)

BAROMETERS, Aneroid (Cat. 7)

BAROMETERS, Mercurial (Cat. 7)

BAROMETERS, Recording (Cat. 7)

BAROMETERS, Station (Cat. 7)

BAROMETRIC PRESSURE RECORDERS, Barometers, see Barometers, Recording (Cat. 7)

BATHS, Calibration and Testing, including Water and Oil—Cat. 4, (see also Temperature Calibration—Cat. 1)

BATTERIES, Dry (Cat. 8)

BATTERIES, Mercury (Cat. 8)

BATTERIES, Radioactive (Cat. 8)

BATTERIES, Solar (Cat. 8)

BATTERIES, Storage (Cat. 8)

BATTERY ELIMINATORS (Cat. 8)

BEAM COMPASSES, see Drawing Instruments (Cat. 7)

BEARING CIRCLES (Cat. 7)

BEARING TEMPERATURE INSTRUMENTS, including Alarms (Cat. 1)

BEARING TESTERS, including Bearing Testing Machines (Cat. 6)

BEARINGS, Ball, Roller, and Needle (including Miniature Precision)—Cat. 8

BEARINGS, Precious Metal (Cat. 8)

BEARINGS, Ring (Cat. 8)

BEARINGS, Self Lubricating (Cat. 8)

BELLOWS, Kovar (Cat. 8)

BELLOWS, Metallic, including Stainless Steel (Cat. 8)

BELLOWS, Thermostatic (Cat. 8)

BENCHES, Optical, see Optical Benches (Cat. 4)

BEVEL PROTRACTORS, see Drawing Instruments (Cat. 7)

BIMETALS, see Thermostatic Elements (Cat. 9)

BIN LEVEL INDICATORS, see Level Indicators, Bin and Bulk Material (Cat. 1)

BINNACLES, see Navigational Instruments (Cat. 5)

BINOCULARS (Cat. 7)

BINOCULARS, including Polarizing, Variable Density, etc. (Cat. 7)

BLACK Light, see Infrared Sources (Cat. 4)

BLAST METER, see Flowmeters, Gas, also Pressure Indicators, Peak (Cat. 1)

BLOCKS, Gage, see Dimensional Gages, Mechanical (Cat. 6)

BLOCKS, Terminal, see Terminal Blocks (Cat. 8)

BLOWERS & FANS, Equipment Cooling (Cat. 8)

BOILER ROOM INSTRUMENTS (Cat. 1), including Condenser Leakage, Damper, Desuperheat, Draft, Feedwater, Specialties, Steam, Stoker, etc. (see also Combustion Safeguards, also Gas Analyzers—Cat. 1)

BOILING POINT, VAPOR PRESSURE ANALYZERS (Cat. 6)

BOLOMETERS, see Radiation Pickups (Cat. 4)

BOLTS, Special Stainless Steel (Cat. 9)

BOMBS, High Pressure for Testing Bottom Hole Samples, Oil and Gas (Cat. 4)

BOMBS, Hydrogenation, Lean Oil (Cat. 4)

BOMBS, Micro Combustion (Cat. 4)

BOMBS, Oxygen, Sodium Peroxide, Sulphur, etc. (Cat. 4)

BOMBS, Reid Vapor Pressure (Cat. 4)

BOMBS, Specific Gravity, see Specific Gravity Bombs (Cat. 4)

BORE INSPECTION INSTRUMENTS, see Telescopes, Bore, Inspection (Cat. 6)

BOTTLES, Cubic Foot, see Specific Gravity Bottles (Cat. 4)

BOTTLES, Specific Gravity, see Specific Gravity Bottles (Cat. 4)

BOTTLES, Weighing, see Weighing Bottles (Cat. 4)

BOURDON TUBES and COILS, see Tubing, Bourdon (Cat. 9)

BOW CIRCLES, See Drawing Instruments (Cat. 7)

BOXES, see Cabinets (Cat. 9), also Panels (Cat. 8)

BOXES, Ayrton, see Shunts (Cat. 3)

BOXES, Resistance, see Resistance Boxes (Cat. 3)

BOXES, Thermostat, see Thermostats (Cat. 1)

BRAKE TESTING INSTRUMENTS (Cat. 6)

BRAKES, Mechanical and Magnetic (Cat. 8)

BREADBOARDS, Servo-system (Cat. 3)

BRIDGES, Balancing and Calibrating, Manual; AC,; Electrical, Capacitance; Electrical, Conductivity; DC; Hoopes; Impedance; Electric Inductance; Kelvin; Limit; Power-Factor; Strain Gage; Vacuum Tube; Wattmeter; Wheatstone (Cat. 3)

BRIDGES, Electrical, Self-balancing, see Potentiometers (Cat. 3)

BRINNELL Machines, see Hardness Testing Machines, Brinell (Cat. 6)

B.T.U. INDICATORS (Cat. 1)

BUBBLERS, see Sight Flow Bubblers (Cat. 1)

BURETTES (Cat. 4)

BURSTING TESTING MACHINES, including Mullen Testers (Cat. 6)

BUSHINGS, Fused Silica, see Silica, Fused (Cat. 9)

CABINETS, Instruments (Cat. 9)

CABINETS, Test see Environmental Test Chambers (Cat. 1)

CABLE, Coaxial (Cat. 8)

CABLE, Flexible, Control (Cat. 8)

CABLE ASSEMBLIES (Cat. 8)

CABLE CONNECTORS, see Connectors (Cat. 8)

CABLE SUPPORTS, see Tubing Supports (Cat. 9)

CABLE TESTERS (Cat. 6)

CALIBRATING EQUIPMENT for Electrical Instruments, see Electrical Instrument Calibrators (Cat. 3)

CALIBRATING EQUIPMENT for Testing Machines, see Testing Machine Calibrators (Cat. 6)

CALIBRATION CHAMBERS, see Environmental Test Chambers (Cat. 1)

CALIBRATORS, Pressure, see Pressure Instrument Calibrators, Deadweight (Cat. 6)

CALIPER RULES (Cat. 6)

CALIPERS, see Dimensional Gages (Cat. 6)

CALORIMETERS, Adiabatic, Coal and Fuel (Cat. 4)

CALORIMETERS, Gas (Cat. 4)

CALORIMETERS, Miscellaneous, Including Peroxide Bomb, Photoelectric, Steam, etc. (Cat. 4)

CAMERA SHUTTER TESTERS (Cat. 6)

CAMERAS, Aerial (Cat. 5)

CAMERAS, Oscilloscope Recording (Cat. 2)

CAMERAS, Scientific, including Back Reflection (Cat. 2)

CAMERAS, Scientific, Diffraction, see X-Ray Cameras, Diffraction (Cat. 4)

CAMERAS, Scientific, Motion Picture, Including High Speed (Cat. 2)

CAPACITANCE INDICATORS (Cat. 3)

CAPACITORS, Air (Cat. 8)

CAPACITORS, Ceramic (Cat. 8)

CAPACITORS, Electrolytic (Cat. 8)

CAPACITORS, Fixed Composition (Cat. 8)

CAPACITORS, High Voltage (Cat. 8)

CAPACITORS, Metallized Paper (Cat. 8)

CAPACITORS, Mica (Oat. 8)

CAPACITORS, Paper (Cat. 8)

CAPACITORS, Plastic Dielectric (Cat. 8)

CAPACITORS, Precision (0.01%)—Cat. 8

CAPACITORS, Tantalum (Cat. 8)

CAPACITORS, Vacuum (Cat. 8)

CAPACITORS, Variable (Cat. 8)

CAPACITORS, Vitreous Enamel (Cat. 8)

CAPACITY METERS, see Capacitance Indicators (Cat. 3)

CARBON DIOXIDE METERS, see Gas Analyzers (Cat. 1)

CARBON MONOXIDE METERS, see Gas Analyzers (Cat. 1)

CARBON PILES, see Resistors, Carbon Compression (Cat. 8)

CASES, Instrument (Cat. 8)

CATHETOMETERS (Cat. 4)

CATHODE RAY TUBES, see Tubes, Cathode Ray (Cat. 8)

CELLS, Conductivity, see Conductivity Cells (Cat. 8)

CELLS, Heat Sensing, see Conductivity Cells (Cat. 8)

CEMENT APPARATUS, see Concrete and Cement Test (Cat. 6)

CEMENT MOLDS (Cat. 6)

CEMENT NEEDLE APPARATUS (Cat. 6)

CEMENT, Optical (Cat. 9)

CENTRIFUGES (Cat. 4)

CHAIN TESTING MACHINES (Cat. 6)

CHAINS, Miscellaneous (Cat. 8)

CHAINS, SURVEYORS, see Surveying Instruments (Cat. 7)

CHAMBERS IONIZATION, see Ionization Chambers (Cat. 4)

CHAMBERS, Test and Calibration, see Environmental Test Chambers (Cat. 1)

CHANGERS, Frequency, see Frequency Changers (Cat. 3)

CHART GAGES for Optical Comparators (Cat. 6)

CHARTS, Electrosensitive and Spark (Cat. 8)

CHARTS, Heat Sensitive (Cat. 8)

CHARTS, Ink Recording (Cat. 8)

CHARTS, Pressure Sensitive (Cat. 8)

CHARTS, Smoke (Cat. 8)

CHARTS, Stylus (Cat. 8)

CHASSIS, Instrument—Cat. 8, (see also Cabinets—Cat. 9; also Cases—Cat. 8)

CHEMICAL COMPOSITION RECORDERS, see Analytical Instruments (Cat. 4)

CHEMICAL FEEDERS, Dry and Liquid (Cat. 1)

CHLORINE TESTING APPARATUS (Cat. 4)

CHOKES, see Coils (Cat. 8)

CHOPPERS, DC-AC, see Converters, Vibrator, DC-AC (Cat. 8)

CHROMATOGRAPHY APPARATUS (Cat. 4)

CHRONOGRAPHS (Cat. 7)

CHRONOMETERS (Cat. 7)

CIRCUIT ANALYZERS, Industrial (Cat. 3)

CIRCUIT BREAKER ANALYZERS (Cat. 3)

CIRCUIT TESTERS, including Radio Set Analyzers, Continuity Testers, etc.—Cat. 3, (see also Cable Testers—Cat. 4)

CIRCUITS, Graphic, including Printed, Electric, Stamped, Etched, and Components (Cat. 8)

CIRCUITS, Potted, including Embedded Components (Cat. 8)

CIRCUITS and **COMPONENTS**, Plug-in (Cat. 8)

CLAMPS, Cable, Conduit, Tube (Cat. 8)

CLEANING COMPOUNDS for Instruments (Cat. 9)

CLEANING MACHINES, Instrument, including Vapor Degreasers, Detergent and Ultrasonic (Cat. 9)

CLINOGRAPHS, Bore Hole (Cat. 5)

CLINOMETERS, Angular Measuring (Cat. 5)

CLINOMETERS, Geologists (Cat. 5)

CLIPS, Battery—Cat.8, (see also Connectors—Cat. 8)

CLIPS, Fahnestock (Cat. 8)

CLIPS, Fuse, Grid, Test (Cat. 8)

CLOCKS, Digital (Cat. 2)

CLOCKS, Master or Primary (Cat. 1)

CLOCKS, Minute Impulse and Synchronous (Cat. 1)

CLOCKS, Program, see timers, Automatic Process, also Program Controllers (Cat. 1)

CLOCKS, Secondary (Cat. 1)

CLOCKS, Standard (Cat. 1)

CLOCKS, Stop (Cat. 1)

CLOCKWORKS, Electric, including Instrument Drives (Cat. 8)

CLOCKWORKS, Mechanical, including Instrument Drives (Cat. 8)

CLOCKWORKS, Pneumatic, Including Instrument Drives (Cat. 8)

CLOSURES, Protective (Cat. 9)

CLOTH, Wire (Cat. 9)

CLOUD AND POUR TEST APPARATUS (Cat. 4)

CLUTCHES, Mechanical, Magnetic (Cat. 8)

COAL TEST INSTRUMENTS AND APPARATUS (Cat. 4)

COCKS, Glass (Cat. 4)

COCKS, Metal (Cat. 4)

COIL FORMS, Ceramic and/or Plastic (Cat. 9)

COIL TESTING EQUIPMENT (Cat. 3)

COIL WINDING MACHINES, see Machines, Coil Winding (Cat. 9)

COILS, including RF and IF (Cat. 3)

COILS, Toroidal (Cat. 8)

COILS, Transformer (Cat. 8)

COLOR ANALYZERS and **COMPARATORS**, Photoelectric (Cat. 4)

COLOR STANDARDS, see Standards, Color (Cat. 4)

COLORIMETER TUBES, see Colorimeters, Visual (Cat. 4)

COLORIMETERS and **COLOR COMPARATORS** Visual (Cat. 4)

COMBUSTION CONTROL EQUIPMENT (Cat. 1), (see also Boiler Room Instruments—Cat. 1)

COMBUSTION INDICATORS and/or Recorders, see Boiler Room Instruments, also Gas Analyzers (Cat. 1)

COMBUSTION SAFEGUARDS, Including Flame Failure (Cat. 1)

COMMUNICATION MEASURING INSTRUMENTS (Cat. 8)

COMMUTATORS, including Collector Rings (Cat. 8)

COMPARATORS, Mechanical, see Dimensional Gages, Mechanical (Cat. 6)

COMPARATORS, Optical, see Dimensional Gages Optical (Cat. 6)

COMPARATORS, Surface Finish, see Dimensional Gages, Surface Finish (Cat. 6)

COMPARATORS, Voltage, see Voltage Comparators (Cat. 3)

COMPASSES, Aircraft (Cat. 5)

COMPASSES, Azimuth (Cat. 5)

COMPASSES, Dip (Cat. 5)

COMPASSES, Drafting Room, see Drawing Instruments (Cat. 7)

COMPASSES, Gyro (Cat. 5)

COMPASSES, Magnetic (Cat. 5)

COMPASSES, Marine (Cat. 5)

COMPASSES, Radio (Cat. 5)

COMPASSES, Telltale, see Compasses, Marine (Cat. 5)

COMPOSITION ANALYZERS, see Analytical Instruments (Cat. 4)

COMPOUNDS, see Cleaning or Potting Compounds (Cat. 9)

COMPUTERS, Analog, Electronic (Cat. 2)

COMPUTERS, Digital, Electronic—Cat. 2, (see also Digital Building Blocks—(Cat. 2)

COMPUTERS, Mechanical and Electro-Mechanical, including Desk Computing Machines (Cat. 2)

COMPUTERS, Process Control (Cat. 1)

COMPUTING Services, Analog (Cat. 2)

COMPUTING SERVICES, Digital, including Data Processing (Cat. 2)

COMPRESSION TESTING MACHINES, see Testing Machines (Cat. 6)

COMPRESSORS, Instrument-Air, see Air Compressors (Cat. 1)

CONCENTRATION RECORDERS, see Analytical Instruments (Cat. 4), pH (Cat. 1), etc.

CONCRETE and **CEMENT TEST APPARATUS** (Cat. 6)

CONDENSATION CONTROLLERS, see Boiler Room Instruments (Cat. 1)

CONDENSER Testers, see Boiler Room Instruments (Cat. 1), also Capacitance Indicators (Electrical)—Cat. 3

CONDENSERS, Electric, see Capacitors (Cat. 8)

CONDUCTIVITY CELLS (Cat. 8)

CONDUCTIVITY METER (Cat. 3)

CONNECTORS, Including Plugs, Clips, Posts, Jacks, etc. (Cat. 8)

CONNECTORS, Printed Circuit (Cat. 8)

CONSISTENCY REGULATORS, Pulp and Paper (Cat. 1)

CONSTANT SPEED AND FREQUENCY SETS, see Speed (Cat. 1) or Frequency (Cat. 3)

CONTACTORS, see Relays (Cat. 8)

CONTACTS, Electrical, Including Carbon, Metal, Graphite, Powdered Metal, Precious Metal (Cat. 8)

CONTOUR MEASURING PROJECTORS, see Dimensional Gages, Optical (Cat. 6)

CONTROL BOARDS, see Panels (Cat. 8)

CONTROL DRIVES, see Cylinders (Cat. 8), also Servomotors (Cat. 5), also Valve Operating Devices (Cat. 1)

CONTROL SYSTEMS, General-purpose Air-operated (Cat. 1)

CONTROL SYSTEMS, General-purpose, Electrical or Electronic (Cat. 1)

CONTROL SYSTEMS, General-purpose, Electromechanical (Cat. 1)

CONTROL SYSTEMS Components, see Circuits and Components, Plug-in (Cat. 8)

CONTROL SYSTEMS, Machine Tool, see Machine Tool Controllers (Cat. 1)

CONTROL VALVES, see Valves (Cat. 1)

CONTROLLERS, see Object of Measurement and Control. For example, for Flow Controller, see Flow (Cat. 1)

CONTROLLERS, Beater, see Consistency Regulators (Cat. 1)

CONTROLLERS, Bin, see Level (Cat. 1) 1)

CONTROLLERS, Condensation, Condenser Leakage, Damper, Desuperheat, Draft, or Feed Water, see Boiler Room Instruments (Cat.

CONTROLLERS, Filter Rate, See Water Works Instruments (Cat. 1)

CONTROLLERS, Furnace, see Combustion Control, also Furnace Control (Cat. 1)

CONTROLLERS, Gas Density, see Density (Cat. 1)

CONTROLLERS, Light, see Illumination (Cat. 1)

CONTROLLERS, Moisture, see Humidity (Cat. 1)

CONTROLLERS, Power Factor, see Power Factor, (Cat. 1)

CONTROLLERS, RKVA, see Electric Power Generation Instruments (Cat. 3)

CONTROLLERS, Rate-Volume, see Flow (Cat. 1)

CONTROLLERS, Stoker, see Boiler Room Instruments (Cat. 1)

CONTROLLERS, Temperature-Time, see Program Controllers (Cat. 1)

CONTROLLERS, Valve, see Valve-Operating Devices (Cat. 1)

CONTROLS, Push-Pull (Cat. 8)

CONVERTERS, AC to DC, including Rotary (Cat. 8)

CONVERTERS, Analog-to-Digital (Cat. 2)

CONVERTERS, Binary-to-Decimal (Cat. 2)

CONVERTERS, DC to AC, including Magnetic and Transistorized (Cat. 8)

CONVERTERS, DC to DC, Transistorized (Cat. 8)

CONVERTERS, Digital-to-Analog (Cat. 2)

CONVERTERS, Electric-to-Hydraulic (Cat. 8)

CONVERTERS, Electric-to-Pneumatic (Cat. 8)

CONVERTERS, Frequency (Cat. 8)

CONVERTERS, Punched Card (Cat. 2)

CONVERTERS, Punched Tape (Cat. 2)

CONVERTERS, Rotary, DC to AC (Cat. 8)

CONVERTERS, Vibrator, DC to AC (Cat. 8)

COORDINATE PLOTTERS, see X-Y Recorders (Cat. 1)

CORDS, see Cable (Cat. 8)

CORROSION TESTERS, see Environmental Test Instruments (Cat. 1)

COUNTERMEASURE SYSTEMS (Cat. 5)

COUNTERS, Alarm (Cat. 1)

COUNTERS, Batch, see Counters, Predetermined (Cat. 1)

COUNTERS, Colony, see Counters, Micro particle (Cat. 4)

COUNTERS, Decade, Electrical Impulse (Cat. 3)

COUNTERS, Electrical Impulse (Cat. 2)

COUNTERS, Electronic, including events-per-unit-time (Cat. 1)

COUNTERS, Footage (Cat. 1)

COUNTERS, Hour, see Timers (Cat. 1)

COUNTERS, Mechanical, including Stroke (Cat. 1)

COUNTERS, Geiger-Mueller (Cat. 4)

COUNTERS, Particle, Including Microparticle (Cat. 4)

COUNTERS, Photoelectric (Cat. 2)

COUNTERS, Photoelectric Curve Followers (Cat. 2)

COUNTERS, Pneumatic and Hydraulic (Cat. 1)

COUNTERS, Predetermined, Including Batch (Cat. 1)

COUNTERS, Radiation, see Counters, Geiger-Mueller, also Radioactivity Instruments (Cat. 4)

COUNTERS, Revolution (Cat. 1)

COUNTERS, Scintillation (Cat. 4)

COUNTERS, Time, see Timers (Cat. 1)

CATALOG LOCATOR

Catalog 1 starts on page 15
Catalog 2 starts on page 87
Catalog 3 starts on page 101
Catalog 4 starts on page 127
Catalog 5 starts on page 138
Catalog 6 starts on page 141
Catalog 7 starts on page 150
Catalog 8 starts on page 153
Catalog 9 starts on page 191

COUNTERS, Vehicular (Cat. 1)

COUPLERS, Directional, see Microwave Instrumentation (Cat. 3)

COUPLINGS, Flexible, including Miniature (Cat. 8)

COVERS, Instrument, including Dustproof and Waterproof—Cat. 9, (see also Cases—Cat. 8)

CRYOSTATS (Cat. 4)

CRYPTOMETERS, Paint (Cat. 4)

CRYSTAL DIODES (Cat. 8)

CRYSTAL ELECTRODES (Cat. 8)

CRYSTAL GROWING EQUIPMENT (Cat. 8)

CRYSTAL HOLDERS (Cat. 8)

CRYSTAL TESTING SETS (Cat. 3)

CRYSTALS, Barium Titanate (Cat. 8)

CRYSTALS, Piezoelectric (Cat. 8)

CRYSTALS, Quartz, Rochelle Salt (Cat. 8)

CRYSTALS, Rock Salt, Optical (Cat. 8)

CRYSTALS, Semiconductor (Cat. 8)

CRYSTALS, Tourmaline (Cat. 8)

CRYSTALS for Watches, Gages, etc. (Cat. 8)

CUBIC FOOT BOTTLES, see Specific Gravity Bottles (Cat. 4)

CUBICLES, see Panels (Cat. 8)

CURRENT INDICATORS, see Ammeters (Cat. 3)

CURRENT LIMITERS, see Current Regulators (Cat. 3)

CURRENT REGULATORS, including Ballast Tubes (Cat. 3)

CURVE FOLLERS—Cat. 1, (see also X-Y Recorders —Cat. 3)

CURVE TRACERS, see Drawing Instruments (Cat. 7)

CUSHIONING & PACKAGING PRODUCTS, including Curled Hair, Felt, Foams, etc. (Cat. 9)

CYCLE CONTROLLERS, see Counters, Timers, or Program Controllers (Cat. 1)

CYLINDERS, Air and/or Hydraulic (Cat. 8)

DAMPERS, PRESSURE, see Pressure Snubbers (Cat. 1)

DAMPING TESTING EQUIPMENT and INSTRUMENTS, Cat. 6, (see also Impact—(Cat. 6)

D'ARSONVAL CONTROLLERS, see Relays (Cat. 8)

D'ARSONVAL MOVEMENTS, see Ammeters, Voltmeters, etc. (Cat. 3)

DATA-HANDLING SYSTEMS, see Data Processing Systems (Cat. 2)

DATA-PROCESSING SYSTEMS, & COMPONENTS, including Tape Transports, Readers, Loggers, etc.—Cat. 2, (see also Computers, also Printers—Cat. 2)

DATA-REDUCTION SYSTEMS, see Data Processing Systems (Cat. 2)

DATA-TRANSMISSION SYSTEMS, see Telemetering (Cat. 1)

DEADWEIGHT TESTERS, see Pressure Instrument Calibrators, Deadweight (Cat. 6)

DECADE BOXES, Resistance, Capacitance, Inductance, etc. (Cat. 3)

DECADE COUNTERS, see Counters, Decade (Cat. 3)

DECELEROMETERS, see Accelerometers (Cat. 7)

DECIBEL METERS, see Sound Level Indicators (Cat. 3)

DEEP SEA INSTRUMENTS (Cat. 5)

DEHUMIDIFIERS, see Dryers, Air or Gas (Cat. 1)

DEHYDRATION EQUIPMENT, see Dryers, Air or Gas, also Humidity (Cat. 1)

DELAY LINES (Cat. 8)

DELINEASCOPES (Cat. 4)

DEMAGNETIZERS (Cat. 3)

DEMAND, Indicators or Recorders, see Load Indicators, Electrical (Cat. 3)

DEMODULATORS, Electronic (Cat. 3)

DENSITOMETERS, Gas and/or Liquid, including Densimeters, Micro densitometers, etc. —Cat. 4, (see also Specific Gravity—Cat. 4)

DENSITOMETERS, Optical, Photographic (Cat. 4)

DENSITY CONTROLLERS and/or RECORDERS (Cat. 1)

DEPTH INDICATORS, Navigational (Cat. 5)

DETECTOR CARS, For Testing Rails in Track, see Flaw Detector Cars (Cat. 6)

DETECTORS, Alpha Ray, Beta Ray, Gamma Ray, etc., see Radioactivity Instruments (Cat. 4)

DETECTORS, Benzol, see Gas Analyzers (Cat. 1)

DETECTORS, Carbon Monoxide, see Gas Analyzers (Cat. 1)

DETECTORS, Combustible Gas, see Gas Analyzers (Cat. 1)

DETECTORS, Crystal, see Crystals (Cat. 8)

DETECTORS, Electrical Ground, see Ground Detectors (Cat .3)

DETECTORS, Explosion, see Combustion Safeguards (Cat. 1)

DETECTORS, Fire, see Fire Detectors (Cat. 1)

CATALOG LOCATOR

Catalog 1 starts on page 15
Catalog 2 starts on page 87
Catalog 3 starts on page 101
Catalog 4 starts on page 127
Catalog 5 starts on page 138
Catalog 6 starts on page 141
Catalog 7 starts on page 150
Catalog 8 starts on page 153
Catalog 9 starts on page 191

DETECTORS, Flaw, see Flaw Detectors (Cat. 6)

DETECTORS, Gamma Ray, see Radioactivity (Cat. 4)

DETECTORS, Gas including Methane and Mine Gases, see Gas Analyzers (Cat. 1)

DETECTORS, Hazardous or Poisonous Gas, see Gas Analyzers (Cat. 1)

DETECTORS, Hydrogen Sulphide, see Gas Analyzers (Cat. 1)

DETECTORS, Infrared, see Infrared Detectors (Cat. 4)

DETECTORS, Leak, see Leak (Cat. 1)

DETECTORS, Lie, see Polygraphs (Cat. 4)

DETECTORS, Mercury Vapor, see Gas Analyzers (Cat. 1)

DETECTORS, Metal, see Metal Detectors (Cat. 6)

DETECTORS, Methane, see Gas Analyzers (Cat. 1)

DETECTORS, Microwave, see Antennas (Cat. 8), also Radiation Pickups (Cat. 4)

DETECTORS, Mine Gases, see Gas Analyzers (Cat. 1)

DETECTORS, Neutron, see Radioactivity (Cat. 4)

DETECTORS, Oxygen Deficiency, see Gas Analyzers (Cat. 1)

DETECTORS, Pin Hole, see Flaw Detectors (Cat. 6)

DETECTORS, Radiation or Radioactivity (Dosimeters), see Radioactivity (Cat. 4)

DETECTORS, Radium, see Radioactivity (Cat. 4)

DETECTORS, Sound, see Sound (Cat. 3)

DETECTORS, Vibration, see Vibration (Cat. 1)

DETECTORS, Voltage, see Null Detectors, also Voltmeters (Cat. 3)

DETONATION INDICATORS (Cat. 6)

DEW POINT INSTRUMENTS, see Humidity (Cat. 1)

DIAL LIGHTS, see Pilot Lights (Cat. 8)

DIAL MICROMETERS, see Dimensional Gages (Cat.. 6)

DIAL THERMOMETERS, see Thermometers (Cat. 1)

DIALS and POINTERS (Cat. 8)

DIAMOND CONTACT POINTS and STYLI see Styli (Cat. 8)

DIAPHRAGMS, Leather, (including Gold Beater's Skin), Fabric and/or Rubber (Cat. 8)

DIAPHRAGMS, Metal (Cat. 8)

DIFFERENTIAL TRANSFORMERS, see Displacement Pickups (Cat. 1)

DIFFRACTION GRATING, see Grating (Cat. 4)

DIGITAL BUILDING BLOCKS, including Computer Components (Cat. 2)

DIGITAL READOUT INDICATORS—Cat. 2, (See also Data Processing—Cat. 2)

DIGITAL RECORDERS, see Printers (Cat. 2)

DIGITALIZERS, see Converters Analog-to-Digital (Cat. 2)

DILATOMETERS (Cat. 4)

DIMENSIONAL GAGES, Optical including Comparators, Interferometers, Micrometers, Projectors, Telescopic (Cat. 6)

DIMENSIONAL GAGES, Electronic, including Comparators, Micrometers (Cat. 6)

DIMENSIONAL GAGES, Mechanical, including Adjustable Length, Bore, Caliper, Center, Coating Thickness, Concentricity, Cylinder, Dial, Drill Grinding, End Measure, Foot Blocks, Gage Blocks, Height, Linear, Depth, Micrometer, Pipe, Piston Ring, Pitch Diameter, Plug, Profile, Radius, Taper, Thickness, etc. (Cat. 6)

DIMENSIONAL GAGES, Pneumatic, including Comparators (Cat. 6)

DIMENSIONAL GAGES, Running Length including Wire, Cable, and Flexible Material (Cat. 6)

DIMENSIONAL GAGES, Surface Finish (Cat. 6)

DIODE TEST SETS (Cat. 3)

DIODES, Germanium (Cat. 8)

DIODES, Silicon (Cat. 8)

DIRECTION INDICATORS, Radioactuated—Cat. 5, (see also Aircraft Instruments, also Navigation Aids—(Cat. 5)

DISCS, Binary Coded (Cat. 2)

DISPLACEMENT INDICATORS, and/or RECORDERS, Angular and Nonlinear Motion (Cat. 1)

DISPLACEMENT INDICATORS and/or RECORDERS, Linear Motion (Cat. 1)

DISPLACEMENT PICKUPS, Capacitance Type (Cat. 1)

DISPLACEMENT PICKUPS, Differential Transformer Type (Cat. 1)

DISPLACEMENT PICKUPS, Magnetic, including Variable Reluctance (Cat. 1)

DISPLACEMENT PICKUPS, Resistive (Cat. 1)

DISPLAYS, see Digital Readout (Cat. 2)

DISSOLVED-OXYGEN RECORDERS, see Gas Analyzers (Cat. 1)

DISTILLATION APPARATUS (Cat. 4)

DISTORTION METERS (Cat. 3)

DIVIDERS Voltage Decade, see Resistance Boxes (Cat. 3)

DIVIDING HEADS, Optical (Cat. 6)

DIVIDING MACHINES, see Machines, Dividing (Cat. 6)

DOLLIES, Oscilloscope & Laboratory (Cat. 8)

DOSIMETERS, see Radioactivity (Cat. 4)

DRAFT INSTRUMENTS —Cat. 1, (see also Boiler Room Instruments, also Pressure—Cat. 1)

DRAWING INSTRUMENTS (Cat. 7)

DRIFT INDICATORS (Cat. 5)

DRILLS, Precision (Cat. 9)

DRIP WELLS, see Air Cleaners (Cat. 1)

DRIVES, Instrument, see Clockworks, also Gear Trains (Cat. 8)

DRIVES, Variable Speed (Cat. 8)

DRYERS, Air or Gas (Cat. 1)

DUCTS, Wiring, Plastic (Cat. 9)

DUROMETERS, see Hardness Testing Machines (Cat. 6)

DUST ANALYSIS APPARATUS, see Air Pollution, also Air Particle (Cat. 4)

DUST-FREE WORK ENCLOSURES & ACCESSORIES, including Rooms, Sterile Cabinets, Pre-entry Showers, Tread Mats, etc. (Cat. 1)

DYNAMOMETERS, see Torque (Cat. 1 and 6)

DYNAMOTORS, including Transistorized (Cat. 8)

EARTH CURRENT INDICATORS (Cat. 5)

EARTH RESISTANCE INDICATORS (Cat. 5)

EBULLIOMETERS (Cat. 4)

EBULLISCOPES, see Ebulliometers (Cat. 4)

ECHELON GRATING, see Grating, Diffraction and Echelon (Cat. 4)

ELECTRIC POWER GENERATION INSTRUMENTS, including Power Analyzers, Frequency and Phase Instruments, Substation Instruments (Cat. 3)

ELECTRIC WAVE FILTER SECTIONS, see Filters, Frequency (Cat. 8)

ELECTRICAL INDICATORS, see also Ammeters Voltmeters, etc. (Cat. 3)

ELECTRICAL INSTRUMENT CALIBRATORS and TEST SETS for Voltage, Current, etc. (Cat. 3)

ELECTROANALYSIS APPARATUS (Cat. 4)

ELECTROLYSIS INSTRUMENTS (Cat. 4)

ELECTROMECHANICAL COMPONENTS, see Servomotors (Cat. 5); also Relays, also Gears, also Clutches, etc. (Cat. 8)

ELECTROMETER TUBES, see Tubes, Electrometer (Cat. 8)

ELECTROMETERS, Quadrant, String, Vibrating Reed (Cat. 3)

ELECTRON MICROSCOPES, see Microscopes (Cat. 4)

ELECTRONIC METERS, see Vacuum-Tube Voltmeters, Signal Generators, Oscilloscopes, etc. (Cat. 3)

ELECTROPHORESIS APPARATUS (Cat. 4)

ELECTROPNEUMATIC CONVERTERS, see Converters, Electric-to-Pneumatic (Cat. 8)

ELECTROSCOPES (Cat. 4)

ELLIPSOGRAPHS, see Drawing Instruments (Cat. 7)

EMBEDDED ASSEMBLIES and COMPONENTS, see Circuits, Potted (Cat. 8)

EMULSION AND DEMULSIBILITY TESTERS (Cat. 4)

ENCLOSURES, see Panels (Cat. 8), also Cabinets (Cat. 9)

END MEASURES, see Dimensional Gages (Cat. 6)

ENGINE COMPRESSION INDICATORS, see Engine Test Instruments (Cat. 6)

ENGINE GOVERNORS, including Internal Combustion Engines, Steam Turbines, etc. (Cat. 1)

ENGINE INDICATORS, see Engine Test Instruments (Cat. 6)

ENGINE TEST INSTRUMENTS, including Ignition Analyzers, Compression Indicators, etc. (Cat. 6)

ENGRAVING EQUIPMENT, including Metal and Plastic, see Machines, Engraving (Cat. 9)

ENGRAVING OF GLASS, see Machines, Engraving (Cat. 9)

ENVIRONMENTAL TEST CHAMBERS and EQUIPMENT, including Humidity, Pressure, Salt-spray, Sand Temperature, Ultraviolet (Cat. 1)

EUSCOPES (Cat. 4)

EXPANSION TEST APPARATUS (Cat. 4)

EXTENSOMETERS (Cat. 6)

FADING TESTERS, including Fade-ometers —Cat. 4, (see also Environmental Testing Equipment—Cat. 1)

FASTENERS, including Metal, Plastic, ect. (Cat. 9)

FATIGUE TESTING MACHINES (Cat. 6)

FAULT LOCATORS, Communication and Lines, Electrical Resistance (Cat. 3)

FEED WATER TESTING APPARATUS, see Water Analysis Outfits (Cat. 4)

FEEDERS, Automatic Proportioning, including Granular Material (Cat. 1)

FERRITE PRODUCTS and COMPONENTS (Cat. 8)

FIELD-STRENGTH MEASURING SETS, Electromagnetic Field —Cat. 3, (see also Magnetic Field— Cat. 3)

FILTERS, Air, see Air Cleaners (Cat. 1)

FILTERS, Band Elimination and/or Band Pass (Cat. 8)

FILTERS, Crystal (Cat. 8)

FILTERS, Electrical Wave, see Filters, Frequency (Cat. 8)

FILTERS Frequency— Cat. 8, (see also Noise Filters—Cat. 3)

Filters, Light and Optical (Cat. 8)

FILTERS, Liquid (Cat. 8)

FILTERS, Radio Noise, see Filters, Frequency (Cat. 8)

FILTERS, Wire Cloth (Cat. 4)

FIRE CONTROL INSTRUMENTS, Military and Naval Ordnance (Cat. 5)

FIRE DETECTORS— Cat. 1, (see also Combustion Safeguards— Cat. 1)

FITTINGS, High Pressure (Cat. 8)

FITTINGS, Quick-Disconnect (Cat. 8)

FITTINGS, Tube and Pipe (Cat. 8)

FLANGES, Orifice, see Orifice Fittings (Cat. 1)

FLASH POINT TESTERS (Cat. 4)

FLATS, Optical, see Optical Flats (Cat. 6)

FLAW DETECTORS, Magnetic (Cat. 6)

FLAW DETECTORS, Miscellaneous, including Resistance and/or Conductivity, also Holiday and Pin Hole Detectors (Cat. 6)

FLAW DETECTORS, Radiography, including Beta-ray and X-ray—Cat. 6, (see also X-ray—Cat. 6)

FLAW DETECTORS, Ultrasonic (Cat. 6)

FLAW DETECTOR CARS, for Rail Track Testing (Cat. 6)

FLEXIBLE COUPLINGS, see Couplings (Cat. 8)

FLIGHT TABLES, see Simulators (Cat. 5)

FLIGHT TEST INSTRUMENTS (Cat. 5)

FLOW CONTROLLERS (Cat. 1)

FLOW INSTRUMENTS, Granular Materials (Cat. 1)

FLOW NOZZLES (Cat. 1)

FLOW PICKUPS, Turbine Type—Cat. 1, (see also Orifice Plates, Venturi Tubes, Pitot Tubes, Flow Nozzles—Cat. 1)

FLOW PROVERS (Cat. 1)

FLOW REGULATORS, Self-Operated (Cat. 1)

FLOW TOTALIZERS (Cat. 1)

FLOW TRANSMITTERS (Cat. 1)

FLOWMETERS, Area, including Cone and Disc Type, Cylinder and Piston Type, Free Float Type (Cat. 1)

FLOWMETERS, Area, Orifice and Plug Type (Cat. 1)

FLOWMETERS, Electro-Magnetic, including Turbine (Cat. 1)

FLOWMETERS, Inferential Type, Including Orifice, Nozzle, Pitot, Venturi; for Air, Gas, Liquid or Steam; Indicating and/or Recording (Cat. 1)

FLOWMETERS, Magnetic (Cat. 1)

FLOWMETERS, Open Channel, including Flume, V-notch, Weir (Cat. 1, (see also Waste—Cat. 1)

FLOWMETERS, Positive Displacement, including Consumer Gas, Nutating Pistons or Disc, Oscillating Platen, Propeller, Reciprocating Piston and Rotary Piston, Water Meters, etc. (Cat. 1)

FLOWMETERS, Sight (Cat. 1)

FLOWMETERS, Vane Type (Cat. 1)

FLUE GAS ANALYZERS, see Gas Analyzers, also Combustion (Cat. 1)

FLUID METERS, GAS, see Flowmeters, Positive Displacement (Cat. 1)

FLUID METERS, Liquid, see Flowmeters, Positive Displacement (Cat. 1)

FLUID METERS, Quantity, see Flowmeterc, Positive Displacement (Cat. 1)

FLUORESCENCE INDICATORS (Cat. 4)

FLUORESCENT ChemICALS (Cat. 9)

FLUOROMETERS (Cat. 4)

FLUOROSCOPES (Cat. 4)

FLUXMETERS, see Magnetic Field Strength Indicators (Cat. 3)

FOIL, Precious Metals—Cat. 9, (see also Ribbon—Cat. 9)

FOOT CANDLE INDICATORS, see Illumination Instruments (Cat. 3)

FORCE MEASURING EQUIPMENT—Cat. 6, (see also Torque—Cat. 6)

FORKS, Synchronization (Cat. 7)

FORKS, Tuning, including Electrically Driven (Cat. 7)

FORKS, Vacuum Driven (Cat. 7)

FRACTIONATING COLUMNS, see Distillation (Cat. 4)

FREQUENCY ANALYZERS, see Spectrum (Cat. 3)

FREQUENCY CHANGERS (Cat. 3)

FREQUENCY INDICATORS and/or RECORDERS, CONTROLLERS (Cat. 3)

FREQUENCY INDICATOR STANDARDS, see Standards (Cat. 3)

FREQUENCY RESPONSE RECORDERS (Cat. 3)

FUEL FLOW INDICATORS, see Flow (Cat. 1)

FUNCTION GENERATORS (Cat. 2)

FURNACE CONTROL SYSTEMS—Cat. 1, (see Boiler Room Instruments, also Combustion Safeguards—Cat. 1)

FURNACES, Calibrating, Annealing and Laboratory (Cat. 4)

FUSES, Instrument (Cat. 3)

GAGE BLOCKS, see Dimensional Gages, Mechanical (Cat. 6)

GAGE BLOCKS, Surface Finish, see Dimensional Gages, Mechanical (Cat. 6)

GAGE COCKS, see Valves, Gage Cocks (Cat. 1)

GAGE GLASS ILLUMINATORS, see Boiler Room Instruments (Cat. 1)

GAGE GLASS TUBES (Cat 8)

GAGE MOVEMENTS (Cat. 8)

GAGE TESTERS, Deadweight, see Pressure Instrument Calibrators, Deadweight (Cat. 1)

GAGES, Bourdon, see Pressure Gages (Cat. 1)

GAGES, Caliper (Dial), see Dimensional Gages (Cat. 6)

GAGES, Coating Thickness, Dimensional Gages (Cat. 6)

GAGES, Comparator, see Dimensional Gages (Cat. 6)

GAGES, Compression, see Engine Test (Cat. 6), also Lead (Cat. 1), also Weight (Cat. 1)

GAGES, Concentricity, see Dimensional Gages (Cat. 6)

GAGES, Contour, see Dimensional Gages (Cat. 6)

GAGES, Deadweight, see Pressure Instrument Calibrators, Deadweight (Cat. 1)

GAGES, Depth, Linear, see Dimensional Gages (Cat. 6)

GAGES, Depth, Navigational, see Depth Indicators (Cat. 5)

GAGES, Draft, see Draft Instruments (Cat. 1)

GAGES, Drill Grinding, see Dimensional Gages (Cat. 6)

GAGES, Feeler, see Dimensional Gages (Cat. 6)

GAGES Film Thickness, see Dimensional Gages (Cat. 6)

GAGES, Gas, see Pressure or Vacuum Gages (Cat. 1)

GAGES, Hydrostatic, see Level (Cat. 1)

GAGES, Internal, Dial, see Dimensional Gages (Cat. 6)

GAGES, Ionization, see Radioactivity Detectors (Cat. 4)

GAGES, Limit, see Dimensional Gages (Cat. 6)

GAGES, Mercury, see Manometers (Cat. 1)

GAGES, Micrometer, see Dimensional Gages (Cat. 6)

GAGES, see Object of Measurement and Control

GAGES, Optical, see Dimensional Gages (Cat. 6)

GAGES, Paper Thickness, see Dimensional Gages, also Paper (Cat. 6)

GAGES, Profile, see Dimensional Gages (Cat. 6)

GAGES, Rain, see Hydrologic Instruments (Cat. 5)

GAGES, Rifle Bore, see Dimensional Gages (Cat. 6)

GAGES, Ring, see Dimensional Gages (Cat. 6)

GAGES, Screw Thread, see Dimensional Gages (Cat. 6)

GAGES, Snap, see Dimensional Gages (Cat. 6)

GAGES, Strain, see Strain Gages (Cat. 1)

GAGES, Surface Finish, see Dimensional Gages (Cat. 6)

GAGES, Tank, see Level (Cat. 1)

GAGES, Telescoping, see Dimensional Gages, also Telescopes (Cat. 6)

GAGES, Thickness, see Dimensional Gages (Cat. 6)

GAGES, Thickness, Eddy Current, see Thickness Gages (Cat. 6)

GAGES, Thickness, Magnetic, see Thickness Gages (Cat. 6)

GAGES, Thickness, Ultrasonic, see Thickness Gages (Cat. 6)

GAGES, Thread, see Dimensional Gages (Cat. 6)

GAGES, Tide, see Hydrologic Instruments (Cat. 5)

GAGES, Venturi, see Flowmeters, Inferential (Cat. 1)

GAGES, Wind, see Meteorological Instruments (Cat. 5)

GAGES, Wire Measuring, see Dimensional Gages (Cat. 6)

GALVANOMETER MOVEMENTS (Cat. 8)

GALVANOMETERS, AC, Astatic, DC, Magnetostriction and Piezoelectric, Reflecting, Suspension Strip, Vacuum-tube, Vibration (Cat. 3)

GAS ANALYZERS, air (Cat. 1)

GAS ANALYZERS, Ammonia (Cat. 1)

GAS ANALYZERS, Carbon Dioxide, and/or Carbon Monoxide (Cat. 1)

GAS ANALYZERS, Flue Gas, see Gas Analyzers, CO, O2, etc, (Cat. 1)

GAS ANALYZERS, Hydrogen, Hydrogen Sulphide, Nitric Oxide, etc. (Cat. 1)

GAS ANALYZERS, Nitrogen (Cat. 1)

GAS ANALYZERS, Orsat (Cat. 1)

GAS ANALYZERS, Oxygen (Cat. 1)

GAS ANALYZERS, Sulphur Dioxide (Cat. 1)

GAS ANALYZERS, Water Vapor (Cat. 1)

GAS DENSITY METERS, see Density (Cat. 1 and 6)

GAS DISTRIBUTION SYSTEM INSTRUMENTS, including Gas Station Meters, Pipe Line Instrumentation, Pressure Regulators, Station Instrumentation, etc. (Cat. 1)

GAS LEAK INDICATORS, see Leak (Cat. 1)

GAS METERS, see Flowmeters (Cat. 1)

GAS METERS, Positive, see Flowmeters, Positive Displacement (Cat. 1)

GAS and VAPOR DISCHARGE TUBES, see Tubes, Discharge (Cat. 8)

GASOLINE MILEAGE TESTERS, see Mileage Indicators (Cat. 7)

GAUSSMETERS, see Magnetic Field Strength (Cat. 3)

GEAR ASSEMBLIES, see Gears, Precision (Cat. 8)

GEAR DEVICES, Water Meter and Register (Cat. 8)

GEAR SEGMENTS, see Gears (Cat. 8)

GEAR TEST INSTRUMENTS—Cat. 6, (see also Dimensional Gages Cat. 6)

GEAR TRAINS Reducing, High Precision, see Gears Precision, Including Gear Trains (Cat. 8)

GEARS, Precision, Including Gear Trains, Gear Hubs, Pinions, Sprockets, Geneva Drives, etc. (Cat. 8)

GEIGER-MUELLER COUNTERS, see Radioactivity (Cat. 4)

CATALOG LOCATOR

Catalog 1 starts on page 15
Catalog 2 starts on page 87
Catalog 3 starts on page 101
Catalog 4 starts on page 127
Catalog 5 starts on page 138
Catalog 6 starts on page 141
Catalog 7 starts on page 150
Catalog 8 starts on page 153
Catalog 9 starts on page 191

GENERATOR SETS, Automatic Engine-driven, for Emergency Power (Cat. 3)

GENERATORS, AC, Complex Wave, DC, Pulse, Signal, Square Wave; Sweep Frequency including AF, RF, UHF; Synchro (Cat. 3)

GENEVA DRIVES, see Gears (Cat. 8)

GEOPHONES (Cat. 7)

GEOPHYSICAL INSTRUMENTS, including Geophysical Shock Recorders, Gravity Indicators, Geophysical Prospecting Equipment—Cat. 7, (See also Radioactivity—Cat. 4)

GERMANIUM DIODES, see Diodes, Germanium (Cat. 8)

GERMANIUM RECTIFIERS, see Rectifiers, Dry Disc (Cat. 8)

GLARE METERS, see Gloss Meters (Cat. 4)

GLASS BLOWING and GLASS BURNERS, see Glass Working Equipment (Cat. 4)

GLASS, Circles and Ovals for Instruments (Cat. 9)

GLASS, Colored, for Filters (Cat. 9)

GLASS, Heat Absorbing and Heat Tempered (Cat. 9)

GLASS, Infrared Transmitting (Cat. 9)

GLASS, Low Reflecting Surfaces (Cat. 9)

GLASS, Photosensitive (Cat. 9)

GLASS, Raw, Optical and Molded Blanks (Cat. 9)

GLASS, Shatterproof for Instruments (Cat. 9)

GLASS TEST INSTRUMENTS, including Hardness, Immersion Liquids, Refraction, Strain, etc. (—Cat. 6, see also Refractometers—Cat. 4)

GLASS TUBING, Heat Resisting (Cat. 9)

GLASS TUBING, Precision Bore (Cat. 9)

GLASS TUBING, Ultraviolet Transmitting, including Opaque to Visible Lighting (Cat. 9)

GLASS WORKING EQUIPMENT, including Blowing, Coating, Cutting, Grinding, Polishing, etc. (Cat. 4)

GLASSES, Cover (Cat. 9)

GLASSWARE, Laboratory & Industrial (Cat. 9)

GLOSS METERS—Cat. 4, (see also Paint Test Instruments—Cat. 4)

GLOW TUBES, Voltage Regulators, see Voltage Regulators (Cat. 3)

GLUE TESTERS, see Adhesion (Cat. 6)

GOLD (Cat. 9)

GONIOMETERS (Cat. 4)

GOVERNORS, Air, see Pressure Regulators, Air (Cat. 1)

GOVERNORS, Engine, see Engine Governors (Cat. 1)

GOVERNORS, Escapement Controlled, see Clockworks (Cat. 8)

GOVERNORS, Gas, see Gas Distribution System Instruments, also Pressure Controllers (Cat. 1)

GOVERNORS, see Object of Control

GOVERNORS, Pump, see Pump Governors (Cat. 1)

GOVERNORS, Steam, see Engine Governors (Cat. 1)

GOVERNORS, Turbine, see Engine Governors (Cat. 1)

GRADUATING MACHINES, see Machines, Dividing (Cat. 6)

GRAIN TEST INSTRUMENTS (Cat. 4)

GRANULAR MATERIALS, Level, see Level (Cat. 1)

GRANULAR MATERIALS FLOW, see Flow Instruments, Granular Material (Cat. 1)

GRANULAR MATERIALS MEASUREMENTS, see Particle Instruments (Cat. 4)

GRATING, Diffraction, Echelon (Cat. 4)

GRAVIMETERS, see Geophysical Instruments (Cat. 7)

GRAVITOMETERS, see Specific Gravity (Cat. 4)

GRAVITY, see Geophysical or Specific Gravity (Cat. 4 and 7)

GREASE TESTING INSTRUMENTS (Cat. 4)

GRINDERS, Precision Surface, see Machines (Cat. 9)

GRINDING FINISH GAGES, see Dimensional Gages (Cat. 6)

GROUND DETECTORS (Cat. 3)

GROUND RESISTANCE INSTRUMENTS, see Resistance Indicators, Ground (Cat. 3)

GUIDANCE SYSTEMS, Inertial (Cat. 5)

GUIDANCE SYSTEMS, Infrared (Cat. 5)

GUIDANCE SYSTEMS, Stellar (Cat. 5)

GYRO PILOT, see Aircraft Instruments (Cat. 5)

GYRO STABILIZERS (Cat. 5)

GYROS AND GYROSCOPES, Vertical and Directional Rate (Cat. 5)

HAIRSPRINGS, see Springs (Cat. 9)

HARDNESS INDICATORS for Plastic Films, see Plastic Test Instruments (Cat. 6)

HARDNESS PENETRATORS, Diamond (Cat. 6)

HARDNESS TESTING MACHINES, including Brinell (Cat. 6)

HARDWARE, Instrument and Electronic Equipment, including Chassis, Handles, Hinges, Keys, Knobs, Legs, Locks, Slides (Cat. 8)

HARMONIC ANALYZERS, see Spectrum Analyzers (Cat. 3)

HEAT FLOW, instruments and transducers (Cat. 1)

HELIOSTATS (Cat. 5)

HERMETIC SEALS (Cat. 8)

HERMETIC SEALS, see Terminals, Hermetic (Cat. 8)

HIGH ALTITUDE TEST and CALIBRATION CHAMBERS, see Environmental Test Chambers (Cat. 1)

HIGH-FREQUENCY APPARATUS, including RF Heaters (Cat. 3)

HOOK GAGES (Cat. 5)

HORIZONS, Artificial, see Aircraft Instruments (Cat. 5)

HOUR COUNTERS, see Time, also Timers (Cat. 1)

HUMIDISTATS (Cat. 1)

HUMIDITY CONTROLLERS (Cat. 1)

HUMIDITY INSTRUMENTS, Conductivimetric (Cat. 1)

HUMIDITY INSTRUMENTS, Hydrometric (Cat. 1)

HUMIDITY INSTRUMENTS, Hydroscopic, including Hair, Plastics, etc. (Cat. 1)

HUMIDITY INSTRUMENTS, Psychrometric, Indicating and/or Recording (Cat. 1)

HUMIDITY-SENSITIVE MATERIALS (Cat. 9)

HYDROGEN-ION INSTRUMENTS, see pH Cat. 1)

HYDROLOGIC INSTRUMENTS, including Rain Gages (Cat. 5)

HYDROMETERS, Indicating and/or Recording (Cat. 1)

HYDRO THERMOGRAPHS (Cat. 1)

HYGROMETERS, see Humidity Instruments (Cat. 1)

HYGROSTATS (Cat. 1)

HYPSOMETERS (Cat. 1)

ICE WARNING INDICATORS, see Aircraft Instruments (Cat. 5)

IGNITION INDICATORS, see Engine Test (Cat. 6)

IGNITION VELOCITY METERS, see Engine Test (Cat. 6)

IGNITRONS, see Tubes, Ignitron (Cat. 8)

ILLUMINATION CONTROLLERS (Cat. 1)

ILLUMINATION INSTRUMENTS, including Exposure, Meters, Foot Candle Meters, Photometers, etc. (Cat. 3)

ILLUMINOMETERS, Macbeth (Cat. 3)

IMMERSION LIQUIDS for Inspection of Glass, see Glass Test (Cat. 6)

IMPACT RECORDERS (Cat. 6)

IMPACT TESTING MACHINES, including Pendulum Type (Cat. 6)

IMPEDANCE MEASURING INSTRUMENTS, including Resistance Meters, Z-Angle Meters, etc. (Cat. 3)

INCLINOMETER TUBES (Cat. 5)

INCLINOMETERS, see Aircraft Instruments (Cat. 5)

INCLINOMETERS, Bore Hole (Cat. 7)

INCLINOMETERS, Lateral, Aviation, see Aircraft Instruments (Cat. 5)

INCLINOMETERS, Ship, see Marine Instruments (Cat. 5)

INDICATOR LIGHTS, see Pilot Lights (Cat. 8)

INDICATORS, see Object of Measurement

INDUCTORS, Fixed (Cat. 3)

INDUCTANCE INDICATORS (Cat. 3)

INFORMATION SYSTEMS, see Data Processing Systems (Cat. 2)

INFRARED DETECTORS (Cat. 4)

INFRARED OPTICS, Including Lenses (Cat. 4)

INFRARED SOURCES (Cat. 4)

INKS, Recording (Cat. 9)

INSPECTION DEVICES, Color, see Color (Cat. 4)

INSPECTION DEVICES, Electrical, see Circuit Testers, also Resistance Testers, also Resistance Indicators, etc. (Cat. 3)

INSPECTION DEVICES, Insulated Wire, see Insulation Testers (Cat. 3)

INSPECTION DEVICES, Optical Projection, see Dimensional Gages (Cat. 6)

INSPECTION DEVICES, Smoothness, see Dimensional Gages, Surface (Cat. 6)

INSPECTION DEVICES, Thickness, see Dimensional Gages, also Thickness Gages (Cat. 6)

INSPECTION EQUIPMENT, Welding, see Flaw Detectors (Cat. 6)

INSPECTION EQUIPMENT, Bore Hole, see Telescopes, Bore Inspection (Cat. 6)

INSPECTION EQUIPMENT, Nondestructive, see Flaw Detectors (Cat. 6)

INSPECTION, Glass and Quartz, see Glass Test (Cat. 6)

INSPECTORS, MAGNETIC, see Flaw Detectors, Magnetic (Cat. 6)

INSTRUMENT CLEANING MACHINES, see Cleaning Machines (Cat. 9)

INSTRUMENT HOUSINGS, see Panels (Cat. 8)

INSTRUMENT PACKAGING, see Cases (Cat. 8), also Curled Hair Products (Cat. 9)

INSTRUMENT PIVOTS and BEARINGS, see Pivots (Cat. 9)

INSTRUMENT REPAIRING TOOLS, see Tools (Cat. 9)

INSTRUMENT TRANSFORMERS, see Transformers (Cat. 8)

INSTRUMENT TUBING and FITTINGS, see Tubing and Fittings (Cat. 8 and 9)

INSTRUMENT TUBING SUPPORTS, see Tubing Supports (Cat. 9)

INSULATION RESISTANCE INDICATORS, see Resistance (Cat. 3)

INSULATION TESTERS—Cat. 3, (see also Resistance Indicators, Insulation—Cat. 3)

INSULATORS, Ceramic, including Special Shapes (Cat. 8)

INSULATORS, Thermocouple, see Thermocouple Insulators (Cat. 8)

INTEGRATORS, Electrical and Electronic (Cat. 3)

INTEGRATORS, Mechanical and Electro-mechanical—Cat. 7, (see also Planimeters—Cat. 7; also Totalizers—Cat. 1)

INTERFEROMETERS, see Dimensional Gages, Optical (Cat. 6)

INVAR, Stampings and Wire (Cat. 9)

INVERTERS, DC to AC (Cat. 3)

ION EXCHANGE COLUMNS (Cat. 4)

IONIZATION CHAMBERS for RADIOACTIVITY (Cat. 4)

IRON, Chemically Pure, including Norway Iron (Cat. 9)

JEWELERS' LATHES, Saws, etc. (Cat. 9)

JEWELS, Instrument, including Bearings (Cat. 8)

JOB TIMING RECORDERS, see Time Recorders (Cat. 1)

JUNCTION BOXES (Cat. 3)

KLYSTRONS, see Tubes, Klystron (Cat. 8)

KNIFE EDGES, Agate (Cat. 9)

KVA INDICATORS and/or RECORDERS (Cat. 3)

KYMOGRAPHS (Cat. 4)

LABORATORY FURNITURE (Cat. 4)

LABORATORY MOTORS, see Motors (Cat. 8)

LABORATORY OVENS, see Ovens, also Furnaces (Cat. 4)

LACTOMETERS (Cat. 4)

LAMP HOLDERS (Cat. 9)

LAMPS, Monochromatic, see Light Sources (Cat. 4)

LAPPING POWDERS (Cat. 9)

LATHES, Glass Working see Glass Working (Cat. 4)

LATHES, see Machines, Lathes (Cat. 9)

LAUNDERING TEST INSTRUMENTS (Cat. 4)

LEAD SHIELDS, see Shields (Cat. 9)

LEAK DETECTORS Fluid (Cat. 1)

LEAK DETECTORS, Gas (Cat. 1)

LEATHER TEST INSTRUMENTS and MACHINES (Cat. 6)

LENGTH INDICATORS, see Dimensional Gages (Cat. 6)

LENGTH STANDARDS, see Standards, Length (Cat. 6)

LENS COATING, see Optical Parts (Cat. 8)

LENS MOUNTINGS, see Optical Parts (Cat. 8)

LENS TESTERS, including Lens Thickness, Focal Length, etc. (Cat. 6)

LENSES, Bullseyes, not Optically Ground (Cat. 8)

LENSES, Low Reflecting Surfaces (Cat. 8)

LENSES, Optical Including Fused Quartz, see Optical Parts (Cat. 8)

LEVEL CONTROLLERS, Bin and Bulk Material (Cat. 1)

LEVEL CONTROLLERS, INDICATORS and/or RECORDERS Liquid—Cat. 1, (see also Valves, Float—Cat. 1)

LEVEL INDICATORS and/or RECORDERS, Bin and Bulk Material (Cat. 1)

LEVEL TRANSMITTERS (Cat. 1)

LEVELLING SADDLES for Flowmeters, etc. (Cat. 1)

LEVELS, Abney (Cat. 7)

LEVELS, Dumpy, Surveying, or Wye, see Surveying Instruments (Cat. 7)

LEVELS, Hand, Including Precision, Prism, and Spirit (Cat. 7)

LIE DETECTORS, see Polygraphs (Cat. 4)

LIGHT METERS, see Illumination (Cat. 9)

LIGHT SOURCES (Cat. 4)

LIGHT SOURCES, Infrared, see Infrared (Cat. 4)

LIGHT SOURCES, Ultraviolet, see Ultraviolet (Cat. 1)

LIGHT WAVE MEASURING EQUIPMENT, see Spectrum Analyzers (Cat. 4)

LIGHTING CONTROLLERS, see Illumination Controllers (Cat. 1)

LIGHTING SYSTEMS, Instrument, see Pilot Lights (Cat. 8)

LIGHTS, see Pilot Lights (Cat. 8)

LINE CURRENT TEST SETS (Cat. 3)

LIQUID LEVEL, Indicators or Recorders, see Level, Liquid (Cat. 1)

LIQUID METERS, Inferential Type, see Flowmeters, Inferential Type (Cat. 1)

LIQUID METERS, Positive Types, see Flowmeters, Positive Displacement (Cat. 1)

LOAD CELLS—Cat. 1, (see also Pressure, also Weight—Cat. 1)

LOAD CONTROLLERS, Weight, see Weight (Cat. 1)

LOAD INDICATORS and/or RECORDERS AND CONTROLLERS, Electrical—Cat. 3, (see also Power Factor—Cat. 3)

LOCATORS, Fault, Electrical Resistance, see Fault Locators (Cat. 3)

LOCATORS, Pipe, see Metal Detectors (Cat. 6)

LOGGERS, Automatic Data, see Data Processing (Cat. 2)

LOUPES, Eye, see Optical Part (Cat. 8)

LUBRICANTS, Instrument, including Pivot, High Temperature, Low Temperature, etc. (Cat. 9)

LUMINESCENT MATERIALS, including Fluorescent and Phosphorescent Paints. Radioactive Phosphors, Radium Paint, etc. (Cat. 9)

LUSTER METERS, see Gloss Meters (Cat. 4)

MACHINE TOOL CONTROLLERS, including Electronic Control Systems (Cat. 1)

MACHINES, Automatic Circuit Assembly, including Automatic Wiring, Automatic Component Assembly, etc. (Cat. 9)

MACHINES, Coil Winding (Cat. 9)

MACHINES, Dividing (Cat. 6)

MACHINES, Engraving (Cat. 9)

MACHINES, Etching, Printed Circuit (Cat. 9)

MACHINES, Filling, including Bag, Bottle, Carton, etc. (Cat. 1)

MACHINES, Jewelers' Lathes etc., see Jewelers' Lathes (Cat. 9)

MACHINES, Lathes, Glass Working (Cat. 4)

MACHINES, Marking (Cat. 9)

MACHINES, Optical, Grinding, Polishing, and Edging (Cat. 9)

MACHINES, Precision Drilling Tapping, and Lathes (Cat. 9)

MACHINES, Presses, including Laboratory, Pellets (Cat. 9)

MACHINES, Screw (Cat. 9)

MACHINES, Tapping, Precision (Cat. 9)

MAGNET CHARGERS AND MAGNETIZERS (Cat. 9)

MAGNET TESTERS (Cat. 3)

MAGNETIC CONVERTERS, see Converters (Cat. 8)

MAGNETIC CORES, see Memories (Cat. 2)

MAGNETIC DRUM MEMORIES, see Memories (Cat. 2)

MAGNETIC FIELD STRENGTH INDICATORS, including Fluxmeters, Gaussmeters, Magnetometers, etc. (Cat. 3)

MAGNETIC INSPECTORS, see Flaw Detectors, Magnetic (Cat. 6)

MAGNETIC MATERIALS, including Powdered (Cat. 9)

MAGNETIC SHIELDING (Cat. 8)

MAGNETIC TAPE, see Tape, Magnetic Recording (Cat. 2)

MAGNETIC TAPE RECORDERS, see Recorders, Magnetic Tape (Cat. 2)

MAGNETOMETERS, see Magnetic Field Strength (Cat. 3), also Geophysical (Cat. 7)

MAGNETRONS, see Tubes, Magnetron (Cat. 8)

MAGNETS, Permanent (Cat. 8)

MAGNIFIERS, see Optical Parts (Cat. 8)

MALT TESTING APPARATUS (Cat. 4)

MANGANIN RESISTANCE TUBES, see Resistance Wire (Cat. 9)

MANIPULATORS, Remote Control—Cat. 4, (see also Micromanipulators—Cat. 4)

MANOMETERS, Electrical Contact (Cat. 1)

MANOMETERS, Glass including Micro, Raised Well Type, Remote Reading, U-Tube, Test, etc. (Cat. 1)

MANOMETERS, High Pressure (Cat. 1)

MANOMETERS, Mercury, see Manometers, Glass (Cat. 1)

MANOMETERS, Micro, see Manometers, Glass (Cat. 1)

MAP MAKING PROJECTORS (Cat. 5)

MAP MEASURES (Cat. 5)

MARINE INSTRUMENTS, including Steering Systems, Logs, etc.—Cat. 5, (see also Barometers—Cat. 7, also Compasses—Cat. 5)

MARKERS, Pipe and Wire (Cat. 8)

MARKING DEVICES (Cat. 8)

MASS STANDARDS, see Standards, Mass (Cat. 7)

MASTER CLOCKS, see Clocks, Master (Cat. 1)

MATERIALS, Cushioning, see Curled Hair (Cat. 9)

MATERIALS, Hydroscopic, see Humidity-Sensitive Materials (Cat. 9)

MEASURING MACHINES, Lineal, see Dimensional Gages (Cat. 6)

MEASURING MACHINES, Wire, see Dimensional Gages (Cat. 6)

MEDICAL EQUIPMENTS including Electromedical (Cat. 4)

MEGOHMMETERS, see Resistance, Indicators, Megohms (Cat. 3)

MELTING POINT APPARATUS (Cat. 4)

MEMORIES, Electrostatic, including C-R Tubes—Cat. 2, (see also Computers—Cat. 2)

MEMORIES, Magnetic, including Tape, Drum, Cores—Cat. 2, (see also Computers—Cat. 2)

MERCURY (Cat. 9)

METAL DETECTORS, including Pipe Locators (Cat. 6)

METALLIC BELLOWS, see Bellows, Metallic (Cat. 8)

METALLURGICAL INSTRUMENTS Including Metalloscopes (Cat 4)

METALS, Bimetallic, see Thermostatic (Cat. 9)

METALS, Clad, Including Silver Clad (Cat. 9)

METALS, Powdered—Cat. 9, (see also Magnetic Material—Cat. 9)

METALS, Thermostatic, see Thermostatic (Cat. 9)

METER PROVERS, Gas, see Flow Provers (Cat. 1)

METER RELAYS, see Relays (Cat. 8)

CATALOG LOCATOR

Catalog 1 starts on page 15
Catalog 2 starts on page 87
Catalog 3 starts on page 101
Catalog 4 starts on page 127
Catalog 5 starts on page 138
Catalog 6 starts on page 141
Catalog 7 starts on page 150
Catalog 8 starts on page 153
Catalog 9 starts on page 191

METEOROLOGICAL INSTRUMENTS, including Wind Velocity, Wind direction, etc. (Cat. 5)

METERS, Acid, see pH (Cat. 1)

METERS, Amperehour, see Amperehour Meters (Cat. 3)

METERS, Batching, see Flowmeters, Positive Displacement (Cat. 1)

METERS, Compressed Air, see Flowmeters (Cat. 1)

METERS, Consumer's Gas, see Flowmeters, Positive Displacement (Cat. 1)

METERS, Counting Rate, see Radioactivity Instrument (Cat. 4)

METERS, Decibel, see Sound Level (Cat. 3)

METERS, Demand, Electric, see Load (Cat. 3)

METERS, Electronic, see specific Instrument—Voltmeters, Oscilloscopes, etc.

METERS, Footage, see Counters, Footage (Cat. 1)

METERS, Foot-candle, see Illumination (Cat. 3)

METERS, Frequency Modulation, see Modulation Indicators (Cat. 3)

METERS, Gas, see Flowmeters, Positive Displacement Type (Cat. 1)

METERS, Gas Station, see Gas Distribution System Instruments (Cat. 1)

METERS, Gauss, see Magnetic Field Strength (Cat. 3)

METERS, Light, see Illumination Instrument (Cat. 3)

METERS, Liquid Volumetric Types, see Flowmeters, Positive Displacement (Cat. 1)

METERS, see Object of Measurement, for example Flowmeters

METERS, Orifice, see Flowmeters, Inferential (Cat. 1)

METERS, Oxygen, see Gas Analyzers (Cat. 1)

METERS, Sewage, see Flowmeters, also Waste (Cat. 1)

METERS, Sight Flow, see Flowmeters, Sight (Cat. 1)

METERS, Ultraviolet Radiation, see Ultraviolet (Cat. 1)

METERS, Venturi, see Flowmeters, Inferential Type, also Venturi Tubes (Cat. 1)

METERS, V-notch, see Flowmeters, Open Channel (Cat. 1)

METERS, Volumetric, Positive Displacement, see Flowmeters, Positive Displacement (Cat. 1)

METERS, Water, see Flowmeters, Inferential Type or Positive Displacement (Cat. 1)

MICA (Cat. 9)

MICROAMMETERS, see Ammeters, Micro and Milli (Cat. 3)

MICRODENSITOMETERS, see Densitometers (Cat. 4)

MICROFARADMETERS, see Capacitance Indicators (Cat. 3)

MICROMANIPULATORS (Cat. 4)

MICROMANOMETERS, see Manometers, Micro (Cat. 1)

MICROMETERS, see Dimensional Gages (Cat. 6)

MICROMETERS, Filar Eyepiece, see Dimensional Gages Optical (Cat. 6)

MICROMETERS, Optical, see Dimensional Gages, Optical (Cat. 6)

MICROPHONES (Cat. 8)

MICROPROJECTOR, see Projectors, Micro (Cat. 6)

MICROSCOPES AND ACCESSORIES (Cat. 4)

MICROSCOPES, Electron (Cat. 4)

MICROSCOPES, Toolmakers (Cat. 6)

MICROTOMES (Cat. 4)

MICROVOLTMETERS, see Voltmeters, Micro (Cat. 3)

MICROWAVE INSTRUMENTATION and EQUIPMENT, including UHF Plumbing, Waveguides VSWR Indicators, Frequency Indicators, Microwave, etc (Cat. 3)

MILEAGE INDICATORS, including Gas Mileage, Truck-Time Recorders, etc. (Cat. 7)

MILITARY INSTRUMENTS, see Ordnance Instruments, also Navigation, also Aircraft, also Marine (Cat. 5)

MILK TEST INSTRUMENTS (Cat. 4)

MILLIAMMETERS, see Ammeters, Micro and Milli (Cat. 3)

MILLIOHMMETERS, see Resistance Indicators, Milliohm (Cat. 3)

MILLIVOLTMETERS, see Voltmeters, Milli (Cat. 3)

MINE GAS INDICATORS, see Gas Analyzers, also Gas Alarms (Cat. 1)

MIRRORS, Front Surface (Cat. 8)

MIRRORS, Instrument (Cat. 8)

MIRRORS, Semi-Transparent (Cat. 8)

MODULATION INDICATORS (Cat. 3)

MODULATORS, Electronic, Magnetic, Photoelectric, etc. (Cat. 3)

MOISTURE CONTROLLERS, see Humidity (Cat. 1)

MOISTURE INDICATORS (Cat. 4)

MOLECULAR STILLS, see Distillation Apparatus (Cat. 4)

MONITORS, including Annunciators (Cat. 1)

MONITORS, RF, FM, etc. (Cat. 3)

MONITORS, Radioactivity, see Radioactivity (Cat. 4)

MONOCHROMATORS, including Infrared (Cat. 8)

MOTION INDICATORS and/or RECORDERS, see Displacement, also Speed (Cat. 1) also Accelerometers (Cat. 7)

MOTOR CONTROLLERS AND REGULATORS (Cat. 1)

MOTOR SPEED Controllers, see Motor Controllers (Cat. 1)

MOTORS, Clock, see Clockworks (Cat. 8)

MOTOR, Clock, see Clockworks (Cat. 8)

MOTORS, Fractional Horsepower, including Reversible and/or Synchronous (Cat. 8)

MOTORS, Servo, see Servomotors (Cat. 5)

MOTORS, Step type, see Switches, Stepping (Cat. 8)

MOTORS, Synchronous (Cat. 8)

MOTORS, Torque (Cat. 8)

MOTORS, Unidirectional, Small, AC (Cat. 8)

MOUNTINGS, Shock and Vibration Absorbing (Cat. 8)

MOVEMENTS, see Clockworks (Cat. 8), Gage (Cat. 8), Galvanometer (Cat. 8), Motors (Cat. 8), Servomotors (Cat. 1)

MUD ANALYSIS INSTRUMENTS (Cat. 4)

MUD SCALES, see Weighing Scales (Cat. 1)

MULLENTESTERS, see Bursting Test Machines (Cat. 6)

MULTIPLE RECORDING INDICATORS, see Recorders, Multipoint (Cat. 2)

MULTIPLE SCALE METERS, see Volt-Ohm-Milliammeters (Cat. 3)

MULTIPLIERS, including High Voltage (Cat. 3)

NAME PLATES (Cat. 8)

NATURAL SCIENCE SUPPLIES (Cat. 4)

NAVAL INSTRUMENTS, see Marine Instruments (Cat. 5)

NAVIGATION AIDS, Aircraft, including Loran, Ranges, Shoran, etc.—Cat. 5, (see also Compasses, also Radar, also Radiosondes—Cat. 5)

NAVIGATION AIDS, Marine, including Loran, Shoran, etc.—Cat. 5, (see also Compasses, also Radar, also Radiosondes—Cat. 5)

NAVIGATIONAL INSTRUMENTS, including Octants, Sextants—Cat. 5, (see also Compasses—Cat. 5)

NEEDLES, Dip (Cat. 7)

NEEDLES, PENETRATION, see Asphalt Testing (Cat. 6)

NEPHELOMETERS (Cat. 4)

NETWORK ANALYZERS, Electric, Matching, Pulse Forming (Cat. 3)

NETWORKS, Plug-In, see Circuits and Components, Plug-In (Cat. 8)

NETWORKS, Printed, Etched, Graphic, see Circuits, Graphic, Printed Electric (Cat. 8)

NEUTRON SOURCES (Cat. 4)

NITROGEN DETERMINATION APPARATUS, see Gas Analyzers, Nitrogen (Cat. 1)

NOISE ANALYZING INSTRUMENTS, see Sound (Cat. 3)

NOISE FILTERS, see also Filters (Cat. 3)

NOZZLES, Flow, see Flow Nozzles (Cat. 1)

NUCLEAR MAGNETIC RESONANCE ANALYZERS (Cat. 4)

NUCLEAR MEASURING DEVICES, see Radioactivity Instruments (Cat. 4)

NULL DETECTORS, Electrical (Cat. 3)

OCEANOGRAPHIC INSTRUMENTS AND EQUIPMENT (Cat. 5)

OCTANTS, NAVIGATING, see Navigational Instruments (Cat. 5)

ODOR DETECTING INSTRUMENTS (Cat. 4)

OHMMETERS, see Resistance Indicators (Cat. 3)

OIL CENTRIFUGE TUBES (Cat. 4)

OIL, High Vacuum (Cat. 9)

OIL LUBRICATING, see LUBRICANTS (Cat. 9)

OIL TESTING INSTRUMENTS, see Petroleum Testing Instruments (Cat. 4)

OPACIMETERS (Cat. 4)

OPERATION INDICATORS and/or RECORDERS, see Time Recorders (Cat. 1)

OPTICAL BENCHES (Cat. 4)

OPTICAL FILTERS, see Filters Light and Optical (Cat. 8)

OPTICAL FLATS, (Cat. 6)

OPTICAL INSTRUMENTS, see Auto-Collimators (Cat. 6) also Microscopes and Nephelometers (Cat. 4), also Periscopes (Cat. 5), also Projectors (Cat. 6), also Reflectometers and Turbidimeters (Cat. 4)

OPTICAL MICROMETERS, see Dimensional Gages, Optical (Cat. 6)

OPTICAL PARTS, Fused Quartz (Cat. 8)

OPTICAL PARTS, including Lens Coatings, Lens Mountings, Lenses, Loupes, Mirrors, Prisms—Cat. 8, (see also Crystals—Cat. 8)

OPTICAL TESTING INSTRUMENTS—Cat. 4, (see also Lens Testers—Cat. 6)

OPTIMETERS (Cat. 4)

ORDNANCE INSTRUMENTS, including Ballistics (Cat. 5)

ORIFICE FITTINGS, Flanges, Plates, Seal Chambers, and Unions (Cat. 1)

ORIFICE METERS, see Flowmeters, Inferential (Cat. 1)

ORIFICES, Adjustable (Cat. 1)

ORSAT GAS APPARATUS, see Gas Analyzers, Orsat (Cat. 1)

OSCILLATORS, Audio-frequency, Microwave, Radio-frequency, Ultrasonic (Cat. 3)

OSCILLOGRAPHS, Cathode-ray, see Oscilloscopes (Cat. 3)

OSCILLOGRAPHS, Moving-conductor (Cat. 3)

OSCILLOGRAPHS, Multi-element (Cat. 3)

OSCILLOGRAPHS, Recording (Cat. 3)

OSCILLOSCOPE DOLLIES, see Dollies (Cat. 3)

OSCILLOSCOPES (Cat. 3)

OUTPUT METERS, see Sound Level (Cat. 3)

OVENS, Calibration, Testing and Aging (Cat. 4)

OVENS, Crystal Oscillator (Cat. 8)

OVENS, Laboratory (Cat. 4)

OVER and UNDER-WEIGHT INDICATORS FOR BEAM SCALES, see Weighing Scales (Cat. 1)

OXYGEN ANALYZERS, see Gas Analyzers (Cat. 1)

PAINT, Changing Color with Temperature, see Temperature-Sensitive Paint (Cat. 1)

PAINT, Conductive (Cat.9)

PAINT TEST INSTRUMENTS, including Hiding Power, Film Thickness, etc. (Cat. 4)

PANELBOARDS, see Panels, also Cases (Cat. 8); also Cabinets (Cat. 9)

PANEL LIGHTS, see Pilot Lights (Cat. 8)

PANELS, Edge Lighted (Cat. 8)

PANELS, Graphic (Cat. 8)

PANELS, Instrument, Metal, including Cubicles, Housings (Cat. 8)

PANELS, Instrument, Plastic including Housings (Cat. 8)

PANELS, Weatherproof Housing (Cat. 8)

PANORAMIC ADAPTERS, see Spectrum Analyzers (Cat. 3)

PANTOGRAPHS (Cat. 7)

PAPER and PULP TESTING MACHINES and INSTRUMENTS, including Folding Endurance, Stiffness, Tearing, also Gummed Tape (Cat. 6)

PARAFFIN and/or Pitch TESTERS (Cat. 4)

PARTICLE INSTRUMENTS, including Particle Size (Cat. 4)

PELORUSES (Cat. 5)

PENETROMETER NEEDLES, see Asphalt Testing Apparatus (Cat. 6)

PENS, Recorder, see Recorder Pens (Cat. 9)

PERISCOPES, Industrial and Smoke (Cat. 1)

PERISCOPES, Military and Naval (Cat. 5)

PERMANENT MAGNETS, see Magnets (Cat. 8)

PERMEAMETERS, (Magnets) (Cat. 3)

PERMEAMETERS, Porosity (Cat. 4)

PETROLEUM TESTING INSTRUMENTS (Cat. 4)

pH CONTROLLERS, INDICATORS and/or RECORDERS (Cat. 1)

PHASE ANGLE INDICATORS (Cat. 3)

PHASE CONTROLLERS (Cat. 3)

PHASE SEQUENCE INDICATORS (Cat. 3)

PHASE SHIFTERS (Cat. 3)

PHOSPHATE TESTING EQUIPMENT (Cat. 4)

PHOSPHORESCENT MATERIALS, see Luminescent Materials (Cat. 9)

PHOTOCOPY & DUPLICATING EQUIPMENT—Cat. 7, (see also Xerography Equipment Cat. 7)

PHOTOELECTRIC CELLS (Cat. 8)

PHOTOELECTRIC COLOR ANALYZERS and COMPARATORS, see Color Analyzers, Photoelectric (Cat. 4)

PHOTOELECTRIC CONTROLS, including Counters, Door Openers, etc.—Cat. 1, (see also Counters, Photoelectric—Cat. 2)

PHOTOGRAMMETRIC INSTRUMENTS (Cat. 5)

PHOTOMETERS, Miscellaneous including Bar, Candle, Flame, Flicker, Neutral Wedge, Sphere, etc.—Cat. 4, (see also Illumination Instruments—Cat. 3)

PHOTOMETERS, Photoelectric, see Illumination Instruments (Cat. 3)

PHOTOMETERS, Reflection (Cat. 4)

PHOTOMETERS, Spectro, see Spectrophotometers (Cat. 4)

PHOTOMETERS, Ultraviolet (Cat. 4)

PHOTO-MICROGRAPHIC EQUIPMENT, see Microscopes (Cat. 4)

PHOTOTUBES and PHOTOCELLS, see Tubes, Photosensitive (Cat. 8)

PHYSICAL TESTING MACHINES for Compression and Tension, see Testing Machines, Universal (Cat. 6)

PICKUPS, Crystal, see Crystals (Cat. 8)

PICKUPS, Capacitance Type, see Displacement Pickups, Capacitance Type (Cat. 1)

PICKUPS, Differential Transformer, see Displacement Pickups, Differential Transformer (Cat. 1)

PICKUPS, Magnetic and Reluctance, see Displacement Pickups, Magnetic (Cat. 1)

PICKUPS, Motion, see Displacement Pickups (Cat. 1)

PICKUPS, see Object of Measurement (Displacement, Speed, Temperature, etc.)

PICKUPS, Photoelectric, see Photoelectric Cells, also Tubes, Photosensitive (Cat. 8)

PICKUPS, Potentiometer, see Potentiometers (Resistors)—Cat. 8; also Displacement Pickups (Cat. 1)

CATALOG LOCATOR

Catalog 1 starts on page 15
Catalog 2 starts on page 87
Catalog 3 starts on page 101
Catalog 4 starts on page 127
Catalog 5 starts on page 138
Catalog 6 starts on page 141
Catalog 7 starts on page 150
Catalog 8 starts on page 153
Catalog 9 starts on page 191

PICKUPS, Radiation Sensitive, see Radiation Pickups (Cat. 4)

PICKUPS, Resistive, see Potentiometers (Resistors)—Cat. 8; also Displacement Pickups (Cat. 1)

PILOT LIGHTS, including Instrument Lighting Systems (Cat. 8)

PILOTS, Automatic, see Aircraft Instruments (Cat. 5)

PINIONS, Precision, see Gears (Cat. 8)

PIPE LOCATORS, see Metal Detectors (Cat. 6)

PIPE AND TUBE TESTING MACHINES (Cat. 6)

PIPELINE INSTRUMENTS, see Gas Distribution (Cat. 1)

PIPETTES, Automatic (Cat. 4)

PISTON RING TESTERS, see Dimensional Gages (Cat. 6)

PITOT—PITOT-STATIC TUBES, Special Aircraft Engine Testing, see Aircraft Instrument (Cat. 5)

PITOT TUBE METERS, see Flowmeters, Inferential (Cat. 1)

PITOT TUBES (Cat. 1)

PIVOTS, Instrument (Cat. 9)

PLANE TABLES, see Surveying Instruments (Cat. 7)

PLANIMETERS, Automatic Flow Recording (Cat. 7)

PLANIMETERS, Linear and/or Radial—Cat. 7, (see also Integrators—Cat. 7)

PLANIMETERS, Square Root (Cat. 7)

PLASTIC TEST INSTRUMENTS, including Hardness Plasticity (Cat. 6)

PLASTIMETERS (Cat. 4)

PLATINUM, Sheet, Foil, Gauze, Wire, etc., see Precious Metals (Cat. 9)

PLOTTER-FOLLOWERS, see Curve Followers (Cat. 1), also X-Y Recorders (Cat. 3), also Data Processing (Cat. 2)

PLUG-IN CIRCUITS and COMPONENTS, see Circuits, Plug-In (Cat. 8)

PLUGS, JACKS and RECEPTACLES, see Connectors (Cat. 8)

PLUGS & CAPS, Plastic, see Closures Protective (Cat. 9)

PLUMB BOBS (Cat. 7)

POINT PULLERS (Cat. 8)

POINTER STOPS (Cat. 8)

POINTERS, Instrument (Cat. 8)

POLARIMETERS (Cat. 4)

POLARISCOPE TUBES, see Tubes, Polariscope (Cat. 4)

POLARISCOPES (Cat. 4)

POLARITY INDICATORS (Cat. 8)

POLARIZERS, Light (Cat. 4)

POLARIZING PLATES (Cat. 4)

POLYGRAPHS (Cat. 4)

POROSITY TESTERS (Cat. 4)

POSITION INDICATORS and/or RECORDERS, see Displacement (Cat. 1)

POSITIONERS, Digital, see Servomechanisms, Digital (Cat. 5)

POSTS, BINDING, see Connectors (Cat. 8)

POTENTIAL DIVIDERS, see Potentiometers (Resistors) (Cat. 8)

POTENTIOMETERS, Manually-balanced (Cat. 3)

POTENTIOMETERS, (Resistors), Linear and Non-linear, Precision (Cat. 8)

POTENTIOMETERS (Resistors), Linear Motion, see Displacement Pickups (Cat. 1)

POTENTIOMETERS, (Resistors) Low Torque (Cat. 8)

POTENTIOMETERS, (Resistors) Multi-turn, Precision (Cat. 8)

POTENTIOMETERS, (Resistors) Pressurized (Cat. 8)

POTENTIOMETERS, (Resistors) Sine-Cosine (Cat. 8)

POTENTIOMETERS, (Resistors) Single Turn (Cat. 8)

POTENTIOMETERS, Self-balancing, Automatic Control, Indicating and/or Recording (Cat. 3)

POTTING COMPOUNDS (Cat. 9)

POWER FACTOR INSTRUMENTS (Cat. 3)

POWER GENERATOR INSTRUMENTS, see Electric Power (Cat. 1)

POWER SUPPLIES, AC, DC, High Voltage, Regulated (Cat. 3)

PREAMPLIFIERS (Cat. 3)

PRECIOUS METALS (Cat. 9)

PRECISION-BORE TUBING, see Tubing (Cat. 9)

PRESSURE CONTROLLERS & TRANSMITTERS, Absolute or Static Pressure (Cat. 1)

PRESSURE DIFFERENTIAL, see Flow Transmitters (Cat. 1)

PRESSURE GAGES with ALARMS (Cat. 1)

PRESSURE GAGES, Absolute Pressure (Cat. 1)

PRESSURE GAGES, Indicating and/or Recorders (Cat. 1)

PRESSURE INDICATORS, Electrical Resistance (Cat. 1)

PRESSURE INDICATORS and/or RECORDERS, High (Above 1000 psi) Pressure (Cat. 1)

PRESSURE INDICATORS, Peak, including Blast Meters (Cat. 1)

PRESSURE INDICATORS, Precision, including large dial (Cat. 1)

PRESSURE INDICATORS, Single-tube Liquid Column, see Manometers (Cat. 1)

PRESSURE INDICATORS, U-tube, see Manometers (Cat. 1)

PRESSURE INSTRUMENT CALIBRATORS, Dead Weight (Cat. 6)

PRESSURE PICKUPS, Electrical Output (Cat. 1)

PRESSURE REDUCING VALVES, see Valves, Pressure Reducing and/or Backpressure (Cat. 1)

PRESSURE REGULATORS, Air or Gas (Cat. 1)

PRESSURE RELIEF, Rupture Discs (Cat. 1)

PRESSURE RELIEF VALVES, see Valves, Relief (Cat. 1)

PRESSURE SNUBBERS, (Cat. 1)

PRESSURE TESTING DEVICES, High (Above 1000 psi) Pressure (Cat. 1)

PRESSURE TRANSMITTERS (Cat. 1)

PRIMARY ELEMENTS, see Object of Measurement; e.g. Flow, Displacement, etc.

PRINTED CIRCUITS, see Circuits, Graphite (Cat. 8)

PRINTERS, Numerical Data, including Data Loggers, High Speed Printers, Typewriters, etc.—Cat. 2. (see also Data Processing—Cat. 2)

PROBES, High Voltage, High Frequency (Cat. 3)

PROFILE RECORDERS, Roughness, Waviness, etc., see Dimensional Gages (Cat. 6)

PROGRAM CLOCKS, see Timers, Automatic Process (Cat. 1)

PROGRAM CONTROLLERS (Cat. 1)

PROJECTORS, Film Slides, Lantern Slide and Opaque Object (Cat. 7)

PROJECTORS, Industrial Inspection (Cat. 6)

PROJECTORS, Micro (Cat. 6)

PROJECTORS, Oscillogram (Cat. 3)

PROPORTIONING PUMPS, see Pumps, Metering and Proportioning (Cat. 1)

PROSPECTING INSTRUMENTS, see Geophysical (Cat. 7)

PROTRACTORS, Bevel, see Drawing Instruments (Cat. 7)

PROTRACTORS, Navigator's, see Navigational Instruments (Cat. 5)

PROTRACTORS, Transparent, see Drawing Instruments (Cat. 7)

PROVERS, Gas Meter, see Flow Provers (Cat. 1)

PROVING RINGS, see Testing Machine Calibrators (Cat. 6)

PSYCHOLOGY LABORATORY APPARATUS—Cat. 4, (see also Polygraphs—Cat. 4)

PSYCHROMETERS, see Humidity Instruments, Psychrometric (Cat. 1)

PUBLIC HEALTH TESTING EQUIPMENT (Cat. 4)

PULP TESTERS, see Paper and Pulp Testing (Cat. 6)

PULSATION DAMPERS, see Pressure Snubbers (Cat. 1)

PULVERIZED MATERIALS MEASUREMENTS, see Particle Instruments (Cat. 4)

PUMP GOVERNORS, including Regulators (Cat. 1)

PUMPS, Compressed Air, see Air Compressors (Cat. 1)

PUMPS, Glass Cylinder and Piston Type (Cat. 4)

PUMPS, High Vacuum, see Vacuum Apparatus (Cat. 1)

PUMPS, Laboratory High (25,000 psi) Pressure (Cat. 4)

PUMPS, Metering and Proportioning—Cat. 1, (see also Flowmeters, Positive Displacement —Cat. 1)

PUMPS, Vacuum, see Vacuum Apparatus (Cat. 1)

PYCNOMETERS, (Cat. 4)

PYRHELIOMETERS (Cat. 7)

PYROMETER CALIBRATING SETS (Cat. 1)

PYROMETER SUPPLIES, see Thermocouple Wire and Components (Cat. 8)

PYROMETER TUBES, see Thermowells (Cat. 1)

PYROMETERS, Electrical Resistance (Cat. 1)

PYROMETERS, Expansion (Cat. 1)

PYROMETERS, Millivoltmetric (Cat. 1)

PYROMETERS, Optical (Cat. 1)

PYROMETERS, Potentiometric (Cat. 1)

PYROMETERS, Radiation, Indicating, Recording and/or Controlling (Cat. 1)

PYROMETERS, Thermoelectric, Indicating, Recording and/or Controlling (Cat. 1)

PYROMETRIC PAINT, see Temperature Sensitive Paint and Crayons (Cat. 1)

Q METERS (Cat. 3)

QUARTZ CRYSTALS, see Crystals, Quartz, also Crystals, Piezoelectric, and Optical Parts (Cat. 8)

RACKS, Cable and Tubing, see Tubing Supports (Cat. 9)

RADAR (Cat. 5)

RADIATION ALARMS (Cat. 7)

RADIATION PICKUPS, including Bolometers, Thermopiles, etc. (Cat. 4)

RADIO BEACON SYNCHRONIZING CONTROLLERS (Cat. 5)

RADIO DIRECTION FINDERS, see Direction Indicators (Cat. 5)

RADIO REMOTE CONTROL SYSTEMS, see Telemetering Systems (Cat. 1)

RADIO SET ANALYZERS, see Circuit Testers (Cat. 3)

RADIO TUBE CHECKERS, see Tube Testers, Electron (Cat. 3)

RADIOACTIVE ISOTOPES (Cat. 7)

RADIOACTIVITY DETECTING and MEASURING EQUIPMENT, including Dosimeters, Radioactive Prospecting, Scintillation Counters—Cat. 4, (see also Ionization Chambers—Cat. 4)

RADIOGRAPHY, see Flaw Detectors, X-Ray, also X-Ray Equipment (Cat. 6)

RADIO-MICROMETERS, see Dimensional Gages, Electronic, also Thickness Gages (Cat. 6)

RADIOSONDES—Cat. 5, (see also Navigation Aids—Cat. 5)

RADIUM PAINT, see Luminescent Materials (Cat. 9)

RAIL TESTING MACHINES, see Flaw Detectors and Flaw Detector Cars (Cat. 6)

RAIN GAGES, see Hydrologic Instruments (Cat. 5)

RANGE FINDING INSTRUMENTS—Cat. 5, (see also Ordnance Instruments—Cat. 5)

RANGE POLES, see Surveying Instruments (Cat. 7)

RATE OF CLIMB INDICATORS, see Aircraft Instruments (Cat. 5)

RATIO BOXES (Cat. 3)

RATIO CONTROLLERS, see Flow (Cat. 1)

REACTANCE METERS, see Impedance Measuring Instruments (Cat. 3)

REACTIVE COMPONENT INDICATORS, see Impedance Measuring Instruments (Cat. 3)

REACTIVE VOLT-AMPERE METERS, see Volt-ampere Meters, Reactive (Cat. 3)

REACTORS, Saturable, see Amplifiers (Cat. 3)

READING LENSES, Thermometer and Burette, see Lenses, Bullseyes (Cat. 8)

RECEIVER INDICATORS and RECORDERS, Electric Signal (Cat. 1)

RECEIVER INDICATORS and RECORDERS, Pneumatic Signal (Cat. 1)

RECORDER PENS and STYLI (Cat. 9)

RECORDERS, Circular Chart—Cat. 2, (see also Object of Measurement)

RECORDERS, Electrosensitive (Cat. 2)

RECORDERS, Magnetic Tape (Cat. 2)

RECORDERS, Multi-point (Cat. 2)

RECORDERS, Numerical Data, see Printers (Cat. 2)

RECORDERS, OPERATIONS, see Time Recorders (Cat. 1)

RECORDERS, Strip Chart—Cat. 2, (see also the Object of Measurement)

RECORDERS, X-Y, see X-Y Recorders, (Cat. 3), also Curve Followers (Cat. 1)

RECORDING HEADS (Cat. 2)

RECORDING PAPERS, see Charts (Cat. 8) (Cat. 2)

RECTIFIERS, Dry Disc, including Copper Oxide, Germanium, Selenium, Silicon—Cat. 8, (see also Rectifiers, Power —Cat. 8)

RECTIFIERS, High-Vacuum (Cat. 8)

RECTIFIERS, Mercury Vapor (Cat. 8)

RECTIFIERS, Power (Cat. 8)

RECTIFIERS, Thermionic and Tube (Cat. 8)

REFLECTION METERS, including Reflectometers (Cat. 4)

REFLECTORS, Including Aspherical, Concave First Surface, Parabolic and Shperical (Cat. 4)

REFLECTORS, Heat Resisting (Cat. 4)

REFLECTORS, Special Alloy (Cat. 4)

REFRACTOMETERS (Cat. 4)

REFRACTORY TUBES and MATERIALS—Cat. 9, (see also Thermowells—Cat. 1)

REFRIGERATION CONTROLLERS (Cat. 9)

REGULATORS, Air and/or Gas, see Pressure Regulators, Air (Cat. 1)

REGULATORS, Damper, see Boiler Room Instruments (Cat. 1)

REGULATORS, District, see Gas Distribution (Cat. 1)

REGULATORS, see Object of Measurement and Control; e.g. Flow Regulators, Temperature Regulators, etc.

RELAY TESTERS (Cat. 3)

RELAYS, Control, including Automatic and Heavy Duty (Cat. 8)

RELAYS, Current, including Continuous (Cat. 8)

RELAYS, Demand Totalizing (Cat. 8)

RELAYS, Electronic (Cat. 8)

RELAYS, Frequency (Cat. 8)

RELAYS, Galvanometer (Cat. 8)

RELAYS, Heavy Duty (Rating 30 amp. or above)—Cat. 8

RELAYS, Hermetically Sealed (Cat. 8)

RELAYS, Instrument Controlled (Cat. 8)

RELAYS, Latching, see Relays, Stepping (Cat. 8)

RELAYS, Light Sensitive, see Relays, Photoelectric (Cat. 8)

CATALOG LOCATOR

Catalog 1 starts on page	15
Catalog 2 starts on page	87
Catalog 3 starts on page	101
Catalog 4 starts on page	127
Catalog 5 starts on page	138
Catalog 6 starts on page	141
Catalog 7 starts on page	150
Catalog 8 starts on page	153
Catalog 9 starts on page	191

RELAYS, Mercury—Cat. 8, (see also Switches, Mercury—Cat. 8)
RELAYS, Mercury Tube (Cat. 8)
RELAYS, Motor Driven, Time Delay (Cat. 8)
RELAYS, Movable Coil, AC (Cat. 8)
RELAYS, Overload (Cat. 8)
RELAYS, Permanent-Magnet Movable Coil (D'Arsonval Type) —Cat. 8
RELAYS, Photoelectric (Cat. 8)
RELAYS, Pneumatic (Cat. 8)
RELAYS, Polarized (Cat. 8)
RELAYS, Power (Cat. 8)
RELAYS, Sensitive (Cat. 8)
RELAYS, Stepping (Cat. 8)
RELAYS, Subminiature (Cat. 8)
RELAYS, Telephone, Auxiliary Ringing (Cat. 8)
RELAYS, Temperature (Cat. 8)
RELAYS, Temperature-compensated (Cat. 8)
RELAYS, Time Delay (Cat. 8)
RELAYS, Transformer, Low Voltage (Cat. 8)
RELAYS, Vacuum Contact (Cat. 8)
RELAYS, Vacuum Tube, see Relays, Electronic (Cat. 8)
RELAYS, Vibrating Reed Type (Cat. 8)
RELIEF VALVES, see Valves, Relief (Cat. 1)
REMOTE-CONTROL EQUIPMENT, see Telemetering (Cat. 1)
REMOTE-METERING EQUIPMENT, Electrical, see Telemetering (Cat. 1)
REMOTE-METERING EQUIPMENT, Pneumatic, see Pressure Transmitters (Cat. 1)
RESISTANCE BOXES, including Decade, Dividing, etc. (Cat. 3)
RESISTANCE COMPARATORS (Cat. 3)
RESISTANCE INDICATORS, Ground, Insulation, Megohm, Milliohm, Ohm (Cat. 3)
RESISTANCE RATIO BOXES (Cat. 3)
RESISTANCE STANDARDS, see Standards (Cat. 3)
RESISTANCE THERMOMETERS, see Thermometers, Electrical Resistance (Cat. 1)
RESISTANCE WIRE (Cat. 9)
RESISTOR BOBBINS, Precision, Ceramic (Cat. 9)
RESISTOR CORES, Ceramic (Cat. 9)
RESISTOR STANDARDS, see Standards (Cat. 3)
RESISTORS, Adjustable (Cat. 8)
RESISTORS, Ballast (Cat. 8)
RESISTORS, Carbon Composition and/or Variable (Cat. 8)
RESISTORS, Decade (Cat. 3)
RESISTORS, Deposited Carbon (Cat. 8)
RESISTORS, Encapsulated (Cat. 8)
RESISTORS, High Frequency (Cat. 8)
RESISTORS, High Megohm (Cat. 8)
RESISTORS, High Voltage (Cat. 8)
RESISTORS, Manganin (Cat. 8)
RESISTORS, Molded (Cat. 8)
RESISTORS, Negative Temperature Coefficient (Cat. 8)
RESISTORS, Non-Inductive (Cat. 8)
RESISTORS, Precision (accuracy better than 1%)—Cat. 8
RESISTORS, Tape (Cat. 8)
RESISTORS, Temperature Sensitive, see Therm.stors (Cat. 8)
RESISTORS, Voltage Sensitive, see Varistors (Cat. 8)
RESISTORS, Wire Wound (2 watts and under) —Cat. 8
RESISTORS, Wire Wound (2 to 500 watts)—Cat. 8
RESISTORS, Wire Wound (500 to 1500 watts)— Cat. 8, (see also Rheostats—Cat. 8)
RESISTORS, Woven (Cat. 8)
RESOLVERS, see Synchros (Cat. 8)
RETICLES (Cat. 8)
REVOLUTION COUNTERS, see Counters, also Tachometers (Cat. 1)
RHEOSTATS, Field (Cat. 8)
RHEOSTATS, Laboratory and/or Meter Testing (Cat. 4)
RHEOSTATS, Slide Wire and Variable—Cat. 8, (see also Resistors —Cat. 8)
RIBBON, Metal, Rolled to Small Fractional Dimensions (Cat. 9)
RINGS, COLLECTOR, see Slip Rings (Cat. 9)
RODS, Pinion, Drawn Shapes (Cat. 9)
RODS, Platinum and Precious Metals (Cat. 9)
RUBBER TESTING MACHINES and INSTRUMENTS (Cat. 6)
RULES, including Aluminum, Brass, Stainless Steel and Steel (Cat. 7)
RULES, Adjustable Curve, see Drawing Instruments (Cat. 7)
RULES, Caliper, see Dimensional Gages, Mechanical (Cat. 6)
RULES, Drafting Room, see Drawing Instruments (Cat. 7)
RULES, Glass (Cat. 9)
RULES, Precision Standard (Cat. 7)
RULES, Slide, see Sliderules (Cat. 7)
RUNNING TIME RECORDERS, see Time Recorders (Cat. 1)
RUPTURE DISCS, see Pressure Relief (Cat. 1)
SACCHARIMETERS (Cat. 4)
SAFETY VALVES, see Valves, Relief (Cat. 1)
SALINITY INDICATORS (Cat. 4)
SALINOMETERS, see Salinity (Cat. 4)
SALT SPRAY TESTERS see Environmental Test Chambers (Cat. 1)
SAMPLERS, Air, see Air Pollution (Cat. 4)
SAMPLERS, Boiler Water, see Boiler Room Instruments (Cat. 1), also Water Analysis (Cat. 4)
SAMPLERS, Miscellaneous (Cat. 4)
SAMPLERS, Sewage, see Waste Treatment (Cat. 1)
SAPPHIRE BOULES (Cat. 9)
SAPPHIRE RODS, see Sapphire (Cat. 9)
SAPPHIRE, Special Shapes and Parts, Balls, Rods, Styli (Cat. 9)
SATURABLE REACTORS, see Amplifiers (Cat. 3)
SAUNDERS PATENT VALVES, see Valves, Diaphragm Seal, including Saunders Patent, Crane, Wynn Type, etc. (Cat. 1)
SAWS, Jewelers' Type, see Jewelers Lathes, Saws (Cat. 9)
SCALERS, Decade, see Counters, Decade (Cat. 3)
SCALERS, Geiger-Mueller, see Counters, Geiger-Mueller, Also Radioactivity (Cat. 4)
SCALES, Drawing, see Drawing Instruments (Cat. 7)
SCALES, Instrument (Cat. 8)
SCALES, WEIGHING see Weighing Scales (Cat. 1)
SCANNERS (Cat. 1)
SCINTILLATION COUNTERS, see Counters, Scintillation (Cat. 4)
SCRATCH HARDNESS TESTING MACHINES (Cat. 6)
SCREENS, X-Ray, Fluoroscopic, including Intensifying (Cat. 4)
SCREW DRIVERS, Instrument (Cat. 9)
SCREW DRIVERS, Torque, see Wrenches, Torque (Cat. 9)
SCREW MACHINE PRODUCTS (Cat. 9)
SCREW MACHINES, see Machines, Screw (Cat. 9)
SCREW THREAD GAGES, see Dimensional Gages (Cat. 6)
SCREWS, Instrument (Cat. 9)
SCREWS, Lead, Precision (Cat. 9)
SCREWS, Stainless Steel (Cat. 9)
SEALS, including High Temperature (Cat. 9)
SEGER CONES, see Pyrometric Cones (Cat. 1)
SEISMOLOGICAL INSTRUMENTS, including Seismographs (Cat. 5)
SEMICONDUCTORS and COMPONENTS, including Rectifiers, Switches, Trigistors, etc. (Cat. 8)
SERVO SYSTEM ANALYZERS (Cat. 1)
SERVO VALVES, Hydraulic (Cat. 1)
SERVOMECHANISMS, including Servo Systems, Kits—Cat. 1 (see also Servomotors —Cat. 5, also Clutches, and Gears—Cat. 8)
SERVOMECHANISMS, Digital, including Digital Positioners (Cat. 1)
SERVOMOTORS, Electric Motor and/or Solenoid (Cat. 1)
SERVOMOTORS, Hydraulic, Mechanical, and Pneumatic (Cat. 1)
SEXTANTS, see Navigational Instruments (Cat. 5)
SHAFTING, Flexible (Cat. 9)
SHAKE TABLES, see Vibration Test (Cat. 1)
SHEETS, Beryllium Copper, Brass, Bronze, Copper (Cat. 9)
SHEETS, Columbium, Molybdenum (Cat. 9)
SHIELDING, MAGNETIC, see Magnetic (Cat. 8)
SHIELDS, Lead (Cat. 9)
SHIELDS, Transformer (Cat. 9)
SHIELDS, Tube (Cat. 9)
SHIP LOGS, see Marine Instruments (Cat. 5)
SHIPBORNE INSTRUMENTS, see Marine Instruments (Cat. 5)
SHOCK TESTERS, see Testing Machines, Miscellaneous (Cat. 6)
SHOCK MOUNTINGS, see Mountings (Cat. 8)
SHUNTS, Electric (Cat. 3)
SHUT-OFF VALVES, see Valves, Relief (Cat. 1)
SIEVE SHAKERS, (Cat. 6)
SIEVES, Testing (Cat. 6)
SIGHT FLOW BUBBLERS (Cat. 1)
SIGHT FLOW INDICATORS, see Flowmeters, Sight (Cat. 1)
SIGHTS, Gun, Telescopic (Cat. 5)
SIGNAL GENERATORS, see Generators (Cat. 8)
SIGNAL LIGHTS, see Pilot Lights (Cat. 8)
SIGNALING DEVICES, Automatic, see Monitors (Cat. 1)
SILICA Fused and/or Vitreous (Cat. 9)
SILVER, see Precious Metals (Cat. 9)
SIMULATORS, Flight including Flight Tables (Cat. 5)
SINE BARS, see Dimensional Gages (Cat. 6)
SLIDERULES, Engineering Calculation (Cat. 7)
SLIP RINGS and ASSEMBLIES (Cat. 8)
SMOKE DENSITY INDICATORS and/or RECORDERS (Cat. 1)
SMOOTHNESS RECORDERS, see Dimensional Gages, Surface (Cat. 6)
SNUBBERS, see Pressure Snubbers (Cat. 1)
SOCKETS, Lamp, see Lamp Holders (Cat. 9)
SOCKETS, Printed Circuit, Transistor, Tube, and Turret (Cat. 9)
SOCKETS, Thermometer, see Thermowells (Cat. 1)
SOFTNESS TESTERS (Cat. 6)
SOIL TESTERS (Cat. 6)
SOLAR BATTERIES, see Batteries, Solar (Cat. 8)
SOLDERING EQUIPMENT, including Resistance Type (Cat. 9)
SOLDERS, Gold and/or Silver (Cat. 9)
SOLDERS, Hard (Cat. 9)
SOLDERS, Soft (Cat. 9)
SOLDERS, Special, including Flux-filled (Cat. 9)
SOLENOIDS—Cat. 8, (see also Relays— Cat. 8)
SOLENOIDS, Rotary (Cat. 8)
SOLENOIDS, Subminiature (Cat. 8)
SORTING EQUIPMENT, including Gaging (Cat. 6)
SOUND ANALYZERS, including Noise (Cat. 3)
SOUND INDICATORS, including Noise Indicators and Noise Measuring Sets (Cat. 3)
SOUND LEVEL INDICATORS, including db Meters (Cat. 3)
SOUND PICKUPS, see Microphones (Cat. 8)
SOUND STANDARDS, see Standards, Sound (Cat. 3)
SOUNDING MACHINES AND LEADS (Cat. 5)
SOUNDING TUBES (Cat. 5)
SPARK PLUG TESTERS, see Engine Test (Cat. 6)
SPECIFIC GRAVITY BALANCES (Cat. 4)
SPECIFIC GRAVITY BOMBS (Cat. 4)
SPECIFIC GRAVITY BOTTLES (Cat. 4)
SPECIFIC GRAVITY CONTROLLERS, INDICATORS and RECORDERS (Cat. 1)
SPECTROGRAPHS (Cat. 4)
SPECTROMETERS (Cat. 4)
SPECTROMETERS, Infrared, Mass (Cat. 4)
SPECTROMETERS, X-ray, see Spectrographs (Cat. 4)
SPECTROPHOTOMETERS (Cat. 4)
SPECTROPHOTOMETERS, Ultraviolet (Cat. 4)
SPECTROSCOPES (Cat. 4)
SPECTROSCOPES, Quartz (Cat. 4)
SPECTROSCOPES, Stellar (Cat. 4)
SPECTRUM ANALYZERS, AF (Cat. 3)
SPECTRUM ANALYZERS, RF including Panoramic Adapters (Cat. 3)
SPECTRUM ANALYZERS, Optical (Cat. 4)
SPEED INDICATORS, RECORDERS and REGULATORS, including Speed Switches (Cat. 1)
SPEED REDUCERS and SPEED INCREASERS (Cat. 1)
SPEED SYNCHRONIZING INDICATORS (Cat. 1)
SPEEDOMETERS, see Speed (Cat. 1)
SPHEROMETERS (Cat. 6)
SPHYGMOMANOMETERS (Cat. 4)
SPIDER SILK (Cat. 9)
SPRING TESTING MACHINES (Cat. 6)
SPRINGS, Compression and Tension (Cat. 9)
SPRINGS, FLAT (Cat. 9)
SPRINGS, Glass (Cat. 9)
SPRINGS, Hair and Hair Assemblies (Cat. 9)
SPRINGS, Helical (Cat. 9)
SPRINGS, Torsion (Cat. 9)
SPRINGS, Watch (Cat. 9)
SPROCKETS, see Gears, (Cat. 8)
SQUARE WAVE GENERATORS, see Generators (Cat. 8)
STANDARD CELLS (Cat. 8)
STANDARDS, Acoustic (Cat. 3)
STANDARDS, Capacitance (Cat. 3)
STANDARDS, Color (Cat. 4)
STANDARDS, Emf, see Standard Cells (Cat. 8)
STANDARDS, Frequency, Inductance, Resistance, Shunt (Cat. 3)
STANDARDS, Gamma-ray, see Standards, Radioactivity (Cat. 4)
STANDARDS, Length (Cat. 6)
STANDARDS, Mass (Cat. 7)
STANDARDS, Pressure (Cat. 7)
STANDARDS, Radioactivity (Cat. 4)
STANDARDS, Sound Level (Cat. 3)

CATALOG LOCATOR

Catalog 1 starts on page 15
Catalog 2 starts on page 87
Catalog 3 starts on page 101
Catalog 4 starts on page 127
Catalog 5 starts on page 138
Catalog 6 starts on page 141
Catalog 7 starts on page 150
Catalog 8 starts on page 153
Catalog 9 starts on page 191

STANDARDS, Surface Roughness and/or Finish (Cat. 6)

STANDARDS, Temperature (Cat. 7)

STANDARDS, Time (Cat. 7)

STANDARDS, Volume (Cat. 7)

STATIC ELECTRICITY GENERATORS (Cat. 3)

STATION CONTROL EQUIPMENT, see Electric Power Generation Instruments, also Gas Distribution System Instruments (Cat. 1)

STEAM GOVERNORS, see Boiler Room Instruments (Cat. 1)

STEAM METERS, see Flowmeters, Inferential Type (Cat. 1)

STEAM SPECIALTIES, see Boiler Room Instruments (Cat. 1)

STELLAR SPECTROSCOPES, see Spectroscopes, Stellar (Cat. 4)

STEREOSCOPES (Cat. 4)

STIFFNESS TESTERS, Paper, see Paper Testing (Cat. 6)

STILLS, Water (Cat. 4)

STIRRERS, Laboratory, Variable Speed (Cat. 4)

STRAIGHT EDGES (Cat. 6)

STRAIGHTENING VANES (Cat. 1)

STRAIN GAGES, including Bonded and Unbonded Resistance Type (Cat. 1)

STRAIN-RATE AND STRESS-RATE CONTROLLERS (Cat. 1)

STRAIN TESTERS, Glass, see Glass Test Instruments (Cat. 6)

STRAIN-TIME RECORDERS (Cat. 1)

STEAM GAGING INSTRUMENTS, see Hydrologic Instruments (Cat. 5)

STRESS-STRAIN ANALYZERS, INDICATORS and/or **CONTROLLERS** (Cat. 1)

STRIP-CHART RECORDERS, see Recorders, also Object of Measurement (Cat. 2)

STROBOSCOPES (Cat. 1)

STYLI, Sapphire, Diamond, etc (Cat. 9)

SULPHUR DIOXIDE INDICATORS, and/or **RECORDERS**, see Gas Analyzers (Cat. 1)

SUNSHINE INDICATORS and/or **RECORDERS** (Cat. 5)

SUPERVISORY CONTROL EQUIPMENT and **SYSTEMS**, see Control Systems, also Telemetering (Cat. 1)

SUPPORTS, Cable and Tubing, see Tubing Support (Cat. 9)

Catalog 1 starts on page 15
Catalog 2 starts on page 57
Catalog 3 starts on page 101
Catalog 4 starts on page 127
Catalog 5 starts on page 138
Catalog 6 starts on page 141
Catalog 7 starts on page 150
Catalog 8 starts on page 153
Catalog 9 starts on page 191

SURFACE FINISH INSTRUMENTS, see Dimensional Gages, Surface (Cat. 6)

SURFACE FINISH SPECIMENS, see Standards, Surface Finish (Cat. 6)

SURFACE PLATES, Glass (Cat. 6)

SURFACE PLATES, Stone (Cat. 6)

SURFACE TENSION INSTRUMENTS (Cat. 4)

SURVEYING INSTRUMENTS, including Aneroid Type (Cat. 7)

SURVEYING INSTRUMENTS, Underground, for wells or bore holes—Cat. 7, (see also Geophysical Instruments—Cat. 7)

SURVEYOR CHAINS, see Surveying Instruments (Cat. 7)

SWITCHES, Air Operated (Cat. 8)

SWITCHES, Explosive-actuated (Cat. 8)

SWITCHES, Instrument, including Toggle, Wiping, Selecting, etc. (Cat. 8)

SWITCHES, Magnetic (Cat. 8)

SWITCHES, Mercury (Cat. 8)

SWITCHES, Pneumatic (Cat. 8)

SWITCHES, Pressure and Vacuum (Cat. 8)

SWITCHES, Pyrometer (Cat. 8)

SWITCHES, Rotary, Including Shaft Motion Types (Cat. 8)

SWITCHES, Sealed (Cat. 8)

SWITCHES, Snap Action (Cat. 8)

SWITCHES, Speed, see Speed (Cat. 1)

SWITCHES, Stepping, including Motors, Step Type—Cat. 8, (see also Relays—Cat. 8)

SWITCHES, Thermostatic (Cat. 8)

SWITCHES, Time (Cat. 8)

SYNCHRO and SERVO TEST BRIDGES and ANALYZERS (Cat. 3)

SYNCHROS, including Transmitters, Receivers, Differentials, Control Transformers, Receivers—Cat. 8, (see also Servomotors—Cat. 5)

SYNCHROSCOPES (Cat. 3)

TACHOGRAPHS (Cat. 1)

TACHOMETER TESTERS (Cat. 6)

TACHOMETERS, Centrifugal (Cat. 1)

TACHOMETERS, Chronometric (Cat. 1)

TACHOMETERS, Electric and Electromagnetic (Cat. 1)

TACHOMETERS, Miscellaneous, including Cross Pendulum, Fly-ball, Ignition actuated, Tilting-ring—Cat. 1, (see also Frequency—Cat. 3)

TACHOMETERS, Recording (Cat. 1)

TACHOMETERS, Speed Limit Control (Cat. 1)

TACHOMETERS, Stroboscopic (Cat. 1)

TACHOMETERS, Vibrating Reed (Cat. 1)

TACHOSCOPES (Cat. 1)

TAFFRAIL LOGS, Ship, see Marine Instruments (Cat. 5)

TAPE, Magnetic Recording (Cat. 2)

TAPE RECORDERS, see Recorders, Magnetic Tape (Cat. 2)

TAPES, Pressure Sensitive, including Symbols (Cat. 9)

TAPES, Steel—Cat. 6, (see also Dimensional Gages—Cat. 6)

TAPES, Surveyor, see Surveying Instruments (Cat. 7)

TELEGRAPHY, Automatic, including Reperforators, Tape Perforators, Tape Transmitters, Teleprinters, Teletypers (Cat. 2)

TELEMETERING SYSTEMS, Electrical, including Remote-Control Equipment (Cat. 1)

TELEMETERING SYSTEMS, Pneumatic (Cat. 1)

TELEMETERING SYSTEMS, RF, including Microwave, Radio Remote Control (Cat. 1)

TELEMETERS, Surveying and Military, Optical (Cat. 5)

TELESCOPES, Alignment (Cat. 6)

TELESCOPES, Astronominal (Cat. 5)

TELESCOPES, Azimuth and/or Refracting

TELESCOPES, Bore and Internal Surface, Inspection (Cat. 6)

TELESCOPES, Laboratory (Cat. 4)

TELESCOPES, Reflection and/or Refracting (Cat. 5)

TELEVISION, Industrial (Cat. 1)

TEMPERATURE ALARM SYSTEMS (Cat. 1)

TEMPERATURE CALIBRATION EQUIPMENT (Cat. 1)

TEMPERATURE CONTROLLERS and REGULATORS (Cat. 1)

TEMPERATURE INSTRUMENTS, see Thermocouples, Thermometers, also Pyrometers, etc. (Cat. 1)

TEMPERATURE SENSITIVE PAINT AND CRAYONS (Cat. 1)

TEMPERATURE STANDARDS, see Standards, Temperature (Cat. 7)

TENDERNESS TESTERS, see Softness Testers (Cat. 6)

TENSILE TEST MACHINES, see Testing Machines (Cat. 6)

TENSIOMETERS (Cat 6)

TENSION INDICATORS and CONTROLLERS—Cat. 6, (see also Textile Test Instruments—Cat. 6)

TERMINALS, Blocks, Boards, and Shapes (Cat. 8)

TERMINALS, Hermetic (Cat. 8)

TERMINATIONS, including Coaxial, Waveguide, etc. (Cat. 8)

TEST CHAMBERS, see Environmental Test Chambers (Cat. 1)

TEST CLIPS, see Clips (Cat. 8)

TEST SETS, Diode, see Diode Test Sets (Cat. 3)

TEST WEIGHTS, see Weights and Measures (Cat. 7)

TESTERS, see the Object of Test

TESTERS, Air Speed Indicators, see Aircraft Instrument Testers (Cat. 5)

TESTERS, Altimeters, see Aircraft Instrument Testers (Cat. 5)

TESTERS, Condenser, see Capacitance Indicators (Electrical—Cat. 3) or Boiler Room Instruments (Process—Cat. 1)

TESTERS, Deadweight, see Pressure Instrument Calibrators, Deadweight (Cat. 6)

TESTERS, Dew Point, see Humidity Instruments (Cat. 1)

TESTERS, Fuel, see Gas Analyzers (Cat. 1), Coal Test, etc. (Cat. 4)

TESTERS, Moisture, see Moisture (Cat. 4), also Environmental Test (Cat. 1)

TESTERS, Mullen, see Bursting Testing (Cat. 6)

TESTERS, Non-destructive, Electrical, for Physical Properties (Cat. 6)

TESTING MACHINES, Bursting, see Bursting Testing Machines (Cat. 6)

TESTING MACHINES, Fatigue, see Fatigue (Cat. 6)

TESTING MACHINES, Glass Strain, see Glass Test (Cat. 6)

TESTING MACHINES, Gummed Tape, Paper, see Paper Test (Cat. 6)

TESTING MACHINES, High Pressure, see Bursting Testing Machines (Cat. 6)

TESTING MACHINES, Knit Goods, see Textile Testing (Cat. 6)

TESTING MACHINES, Leather, see Leather Testing (Cat. 6)

TESTING MACHINES, Miscellaneous, including Alternating Stress, Bending, Compression, Creep, Deflection, Ductility, Impact, Pendulum, Stiffness and Bending, Stretch, etc.—Cat. 6. (see also Testing Machines, Universal—Cat. 6)

TESTING MACHINES, Paper, see Paper Testing (Cat. 6)

TESTING MACHINES, Vibration, see Vibration (Cat. 1)

TESTING MACHINE (UNIVERSAL) CALIBRATORS, including Proving Rings (Cat. 6)

TESTING MACHINES, Universal, Dead Weight Beam (Cat. 6)

TESTING MACHINES, Universal, Hydraulic (Cat. 6)

TESTING MACHINES, Universal, Spring Dynamometer (Cat. 6)

TESTING MACHINES, Wire, see Wire Testing (Cat. 6)

TESTING SETS, see the Object of Measurement and Test

TESTING SETS, Electrical see Circuit Testers (Cat. 3)

TESTING SETS, Meters, Electrical, see Electrical Instrument Calibrators (Cat. 3)

TESTING SETS, Water, see Water Analysis (Cat. 4)

TEXTILE TEST INSTRUMENTS and MACHINES (Cat. 6)

THEODOLITES, Magnetic (Cat. 5)

THEODOLITES, Pilot Balloon (Cat. 5)

THERMISTORS (Cat. 8)

THERMO-AMMETERS, see Ammeters (Cat. 3)

THERMOCOUPLE EXTENSION WIRE in Multiple Pair Cables (Cat. 8)

THERMOCOUPLE INSULATORS (Cat. 8)

THERMOCOUPLE REFERENCE JUNCTIONS (Cat. 1)

THERMOCOUPLE WELLS, see Thermowells (Cat. 1)

THERMOCOUPLE WIRE and COMPONENTS, including Extension Lead Wire (Cat. 8)

THERMOCOUPLES, Base Metal—Cat. 1, (see also Wire, Thermocouple—Cat. 9)

THERMOCOUPLES, Contact Type—Cat. 1, (see also Thermometers, Surface—Cat. 1)

THERMOCOUPLES, Immersion (Cat. 1)

THERMOCOUPLES, Rare Metal (Cat. 1)

THERMOCOUPLES, Vacuum, (Cat. 8)

THERMOELECTRIC DEVICES (Cat. 8)

THERMOHYDROMETERS, see Hydrometers (Cat. 4)

THERMOMETER TESTERS, see Temperature Calibration (Cat. 1)

THERMOMETER TEST WELLS, see Thermowells (Cat. 1)

THERMOMETER TUBES, see Thermowells (Cat. 1)

THERMOMETERS, Dial, Bimetal (Cat. 1)

THERMOMETERS, Dial, Gas, Mercury, Organic Liquids filled, or Vapor-pressure (Cat. 1)

THERMOMETERS, Electrical Resistance, Indicating, Recording and/or Controlling (Cat. 1)

THERMOMETERS, Indicating, Glass, including Mercury, Spirit (Cat. 1)

THERMOMETERS, Indicating, Pressure-spring (Cat. 1)

THERMOMETERS, Maximum and Minimum Registering (Cat. 1)

THERMOMETERS, Recording and/or Controlling, Filled Systems (Cat. 1)

THERMOMETERS, Surface (Cat. 1)

THERMOMETERS, Thermistor—Cat. 1, (see also Thermistors—Cat. 8)

THERMOPILES, see Radiation Pickups (Cat. 4)

THERMOSTATIC ELEMENTS and Metals, including Bimetallic Materials, Springs, Strips, Fabricated Parts, etc. (Cat. 9)

THERMOSTATS (Cat. 1)

THERMO-VOLTMETERS, see Voltmeters, Thermo (Cat. 3)

THERMOWELLS (Cat. 1)

THICKNESS GAGES (Cat. 6)

THICKNESS GAGES, Radiation (Cat. 6)

THICKNESS GAGES, Ultrasonic (Cat. 6)

THREAD GAGES, see Dimensional Gages (Cat. 6)

THREAD MEASURING WIRES, see Wires, Thread Measuring (Cat. 6)

THYRATRONS, see Tubes, Thyratron (Cat. 8)

TIDE GAGES, see Hydrologic Instruments (Cat. 5)

TIME CONTROLLERS, see Timers (Cat. 1)

TIME INDICATORS, see Clocks, also Watches, (Cat. 1)

TIME INTERVAL APPARATUS, see Counters, also Timers (Cat. 1)

TIME RECORDERS, including Running Time, Time Operation, Time Totalizers, etc. (Cat. 1)

TIME STUDY APPARATUS (Cat. 1)

TIMERS, including Automatic Reset, Cycle Interval—Cat. 1, (see also Program Controllers—Cat. 1)

TIMERS, Microsecond—Cat. 1, (see also Counters, Electronic—Cat. 1)

TIN RIBBON, Block (Cat. 9)

TITRATION APPARATUS, Electrometric (Cat. 4)

TITRATION APPARATUS, Manual (Cat. 4)

TITROMETERS (Cat. 4)

TONG AMMETERS, see Ammeters (Cat. 3)

TOOLMAKER'S FLATS (Cat. 6)

TOOLS, Precision (Cat. 9)

TOPOGRAPHIC INSTRUMENTS, see Surveying Instruments (Cat. 7)

TORQUE CONTROL EQUIPMENT and GAGES (Cat. 1)

TORQUE TESTERS (Cat. 6)

TORQUE WRENCHES, see Wrenches (Cat. 9)

TOTALIZERS, Demand (Cat. 1)

TOTALIZERS, Electric Energy (Cat. 1)

TOTALIZERS, Fluid Flow and/or Gas Flow, see Flow Totalizers (Cat. 1)

TOTALIZERS, Running Time, see Time Recorders (Cat. 1)

TRANSCEIVERS (Cat. 3)

TRANSDUCERS. Note: A transducer converts one form of POWER into another. For numerous primary measuring devices see the correct headings under the measurables; e.g. Displacement Pickups, Flow Pickups, Pressure Pickups, etc.

TRANSDUCERS, Ultrasonic (Cat. 8)

TRANSFORMERS, Ajustable, see Transformers, Variable (Cat. 8)

TRANSFORMERS, Constant Voltage—Cat. 8, (see also Voltage Regulators—Cat. 3)

TRANSFORMERS, Differential, see Displacement Pickups, Differential Transformers (Cat. 1)

TRANSFORMERS, High Frequency (Cat. 8)

TRANSFORMERS, Impedance (Cat. 8)

TRANSFORMERS, Input, Output, and Interstage, including AF, IF, and RF (Cat. 8)

TRANSFORMERS, Instrument including Current, and/or Potential, Laboratory (Cat. 8)

TRANSFORMERS, Insulation Testing (Cat. 8)

TRANSFORMERS, Isolation (Cat. 8)

TRANSFORMERS, Microwave (Cat. 8)

TRANSFORMERS, Phasing (Cat. 8)

TRANSFORMERS, Power (Cat. 8)

TRANSFORMERS, Pulse (Cat. 8)

TRANSFORMERS, Saturable., see Amplifiers (Cat. 3)

TRANSFORMERS, Ultrasonic (Cat. 8)

TRANSFORMERS, Variable, including Voltage Testing, and Autotransformers (Cat. 8)

TRANSFORMERS, Voltage Regulating, see Transformers, Constant Voltage (Cat. 8)

TRANSISTOR TESTING SETS (Cat. 3)

TRANSISTORS (Cat. 8)

TRANSITS, Engineer's, see Surveying Instruments (Cat. 7)

TRANSITS, Pocket (Cat. 7)

TRANSMITTERS, see Telemetering, also Pressure Transmitters, also Flow Transmitters (Cat. 1)

TRIMMERS, Capacitor, see Capacitors (Cat. 8)

TRUCK-MILEAGE RECORDERS, see Mileage Indicators (Cat. 7)

TUBE TESTERS, Electron (Cat. 3)

TUBES, Cathode Ray, including Display, Camera, Storage, etc. (Cat. 8)

TUBES, Discharge, Gas and Vapor, including Argon, Mercury, Neon, Sodium, etc. (Cat. 8)

TUBES, Electrometer (Cat. 8)

TUBES, Electron, Vacuum (Cat. 8)

TUBES, Geiger-Mueller—Cat. 8, (see also Counters, G-M—Cat. 4)

TUBES, Glow—Cat. 8, (see also Tubes, Discharge—Cat. 8)

TUBES, Ignitron (Cat. 8)

TUBES, Klystron (Cat. 8)

TUBES, Magnetron (Cat. 8)

TUBES, Nessler (Cat. 4)

TUBES, Photosensitive, Including Phototubes and Photocells (Cat. 8)

TUBES, Polariscope (Cat. 4)

TUBES, Pyrometer Protection, see Thermowells (Cat. 1)

TUBES, Thyratron (Cat. 8)

TUBES, Travelling Wave—Cat. 8, (see also Microwave Equipment—Cat. 3)

TUBES, Ultra-Violet Light, see Light Sources (Cat. 4)

TUBES, Vacuum, see Tubes Electron, Vacuum (Cat. 8)

TUBES, Voltage Regulator, see Tubes, Discharge (Cat. 8), also Current Regulators (Cat. 3)

TUBES, X-ray (Cat. 8)

TUBING, Armored, see Tubing, Capillary (Cat. 9), also Tubing, Flexible, Multiple Tube Bundles (Cat. 9)

TUBING, Bourdon (Cat. 9)

TUBING, Capillary (Cat. 9)

TUBING, Ceramic (Cat. 9)

TUBING, Fibre (Cat. 9)

TUBING, Flexible (Cat. 9)

TUBING, Flexible, Multible Tube Bundles (Cat. 9)

TUBING, Fused Quartz (Cat. 9)

TUBING, Glass Fibre, Insulation (Cat. 9)

TUBING, Laminated Phenolic (Cat. 9)

TUBING, Low Coefficient of Expansion (Cat. 9)

TUBING, Mica (Cat. 9)

TUBING, Miscellaneous, including Illium, Invar, Kovar, Special Alloy, Tantalum (Cat. 9)

TUBING, Nickel, Monel, Inconel (Cat. 9)

TUBING, Paper (Cat. 9)

TUBING, Plastic (Cat. 9)

TUBING, Plastic Coated Copper & Aluminum (Cat. 9)

TUBING, Precious Metals, including Platinum (Cat. 9)

TUBING, Precision Bore, Glass, see Glass Tubing (Cat. 9)

TUBING, Precision Bore, Metal (Cat. 9)

TUBING, Rubber (Cat. 9)

TUBING, Varnished or Lacquered (Cat. 9)

TUBING SUPPORTS, including Cable Supports, Troughs, etc. (Cat. 9)

TUNGSTEN, Wire and Products (Cat. 9)

TUNING FORKS (Cat. 3)

TURBIDIMETERS (Cat. 4)

TURBINE GOVERNORS (Cat. 1)

TWEEZERS, Instrument—Cat. 9, (see also Tools, Precision—Cat. 9)

ULTRASONIC EQUIPMENT, including Generators (Cat. 3)

ULTRAVIOLET INDICATORS and/or RECORDERS (Cat. 1)

ULTRAVIOLET LIGHT SOURCES (Cat. 1)

VACUUM APPARATUS including Pumps (Cat. 1)

VACUUM CONTROLLERS, INDICATORS, and/or RECORDERS (Cat. 1)

VACUUM GAGES, Hot-Wire, Pirani, etc. (Cat. 4)

VACUUM GAGES, Ionization (Cat. 4)

VACUUM GAGES, McLeod (Cat. 1)

VACUUM GAGES, Molecular (Cat. 4)

VACUUM GAGES, Thermocouple (Cat. 4)

VACUUM, HIGH (below 1 mu) **CONTROLLERS, INDICATORS, and RECORDERS** (Cat. 1)

VACUUM-OPERATED DEVICES, Electric Motor (Cat. 1)

VACUUM SPECTROGRAPHS, see Spectrographs (Cat. 4)

VACUUM-TUBE BRIDGES, see Bridges (Cat. 3)

VACUUM-TUBE RELAYS, see Relays, Electronic (Cat. 8)

VACUUM TUBE VOLTMETERS (Cat. 3)

VACUUM TUBES, see Tubes, Electron, Vacuum (Cat. 8)

VALVE ACTUATORS, see Valve Operating Devices (Cat. 1)

VALVE OPERATING DEVICES, Electropneumatic, see Converters, Electric-to-Pneumatic (Cat. 8)

VALVE OPERATING DEVICES, Hydraulic, including Cylinder (Cat. 1)

VALVE OPERATING DEVICES, Pneumatic, including Cylinder (Cat. 1)

VALVE OPERATING DEVICES, Solenoid (Cat. 1)

VALVE POSITIONERS (Cat. 1)

VALVES, Ball (Cat. 1)

VALVES, Bellows Seal, see Valves, Packless (Cat. 1)

VALVES, Butterfly (Cat. 1)

VALVES, Control (Cat. 1)

VALVES, Diaphragm Seal, including Saunders Patent, Crane, Wynn Type, etc. (Cat. 1)

VALVES, Flexible Sleeve (Cat. 1)

VALVES, Float-operated (Cat. 1)

VALVES, Gage Cocks (Cat. 1)

VALVES, High Pressure (Cat. 1)

VALVES, Needle (Cat. 1)

VALVES, Packless (Cat. 1)

VALVES, Plug (Cat. 1)

VALVES, Pressure Reducing and/or Back-Pressure, see Valves, Control (Cat. 1)

VALVES, Relief and Safety (Cat. 1)

VALVES, Slurry, see Valves, Flexible Sleeve (Cat. 1)

VALVES, Solenoid (Cat. 1)

VARISTORS (Cat. 8)

VARMETERS, see Volt-Ampere Meters, Reactive (Cat. 3)

VEHICLE TRAVEL RECORDERS, see Mileage Indicators (Cat. 7)

VELOCITY INSTRUMENTS, see Speed (Cat. 1)

VENTURI METERS, see Flowmeters, Inferential (Cat. 1)

VENTURI TUBES (Cat. 1)

VIALS, Level (Cat. 8)

VIBRATION INSTRUMENTS, Indicators and/or Recorders (Cat. 1)

VIBRATION ISOLATORS, see Mountings, Shock and Vibration Absorbing (Cat. 8)

VIBRATION PICKUPS (Cat. 1)

VIBRATION TEST EQUIPMENT, including Shake Tables (Cat. 1)

VIBROGRAPHS (Cat. 1)

VIBROMETERS (Cat. 1)

VIBROSCOPES (Cat. 1)

VISCOSIMETER BATHS, Constant-Temperature (Cat. 4)

VISCOSIMETERS, including Brookfield, Engler, Fenske, Ford (for Paint), Hoeppler, MacMichael, Ostwald, Redwood, Scott, Storme, Ubbelohde (Cat. 4)

VISCOSIMETERS, Kinematic (Cat. 4)

VISCOSIMETERS, Recording (Cat. 4)

VISCOSIMETERS, Saybolt (Cat. 4)

VISCOSIMETERS, Ultrasonic (Cat. 4)

VISCOSIMETERS, Zahn (Cat. 4)

VISCOSITY CONTROLLERS, including Consistency (Cat. 1)

VISCOSITY GAGES, see Viscosimeters (Cat. 4)

VISCOSITY TUBES (Cat. 4)

VOLTAGE COMPARATORS (Cat. 3)

VOLTAGE DETECTORS, see Null Detectors (Cat. 3)

VOLTAGE DIVIDERS, see Attenuators, also Potentiometers (Resistors)—(Cat. 8)

VOLTAGE, HIGH (above 2300 volts) **MEASURING DEVICES and/or INDICATORS** (Cat. 3)

VOLTAGE REGULATORS, Glow Tube (Cat. 3)

VOLTAGE REGULATORS, Line Voltage (Cat. 3)

VOLTAGE STANDARDS, see Standard Cells (Cat. 8)

VOLTAGE SUPPLIES, see Power Supplies (Cat. 3)

VOLT-AMMETERS (Cat. 3)

VOLT-AMPERE-HOUR METERS (Cat. 3)

VOLT-AMPERE METERS, Reactive (Cat. 3)

VOLTMETERS, AC, Rectifier (Cat. 3)

VOLTMETERS, Digital (Cat. 3)

VOLTMETERS, Electrostatic (Cat. 3)

VOLTMETERS, Indicating and Recording (Cat. 3)

VOLTMETERS, Laboratory Standard (Cat. 3)

VOLTMETERS, Micro, RF, Millivolts and Microvolts (Cat. 3)

VOLTMETERS, Millivoltmeters, AC, Rectifier (Cat. 3)

VOLTMETERS, Oxide Rectifier (Cat. 3)

VOLTMETERS, Peak (Cat. 3)

VOLTMETERS, Thermo (Cat. 3)

VOLTMETERS, Thermionic Rectifier (Cat. 3)

VOLTMETERS, Vacuum-Tube, see Vacuum-Tube Voltmeters (Cat. 3)

VOLT-OHMMETERS and VOLT-OHM-MILLIAMMETERS (Cat. 3)

VOLUME CONTROLS, see Potentiometers (Resistors)—Cat. 8

VSWR INDICATORS, see Microwave (Cat. 3)

WASHERS, Metal & Plastic (Cat. 9)

WASTE TREATMENT INSTRUMENTS (Cat. 1)

WATCHES, Chronometer, including Marine—Cat. 1, (see also Clocks—Cat. 1)

WATCHES, Stop (Cat. 1)

WATCHMAKER'S SUPPLIES and TOOLS (Cat. 9)

WATER ANALYSIS OUTFITS, including Hardness Testers (Cat. 4)

WATER AND SEDIMENT APPARATUS (Cat. 4)

WATER BATHS, Constant Temperature, see Baths (Cat. 4), also Temperature Calibration (Cat. 1)

WATER METERS, see Flowmeters, Positive Displacement (Cat. 1)

WATTHOUR METERS (Cat. 3)

WATTHOUR METER TESTERS (Cat. 3)

WATTMETERS, Clamp Type (Cat. 3)

WATTMETERS, Electrostatic (Cat. 3)

WATTMETERS, Indicating (Cat. 3)

WATTMETERS, Laboratory Standard (Cat. 3)

WATTMETERS, Microwave see Microwave (Cat. 3)

WATTMETERS, Reactive (Cat. 3)

WATTMETERS, Recording (Cat. 3)

WAVEGUIDES, see Microwave (Cat. 3)

WAVE METERS, see Frequency Indicators (Cat. 3)

WEATHERING MACHINES (Cat. 4)

WEATHERING TESTERS, see Environmental Test Chambers (Cat. 1), also Fading Testers (Cat. 4)

WEIGHT CONTROLLERS, Indicating, Recording (Cat. 1)

WEIGHING BOTTLES (Cat. 4)

WEIGHING SCALES (Cat. 1)

WEIGHING SCALES, Laboratory (Cat. 4)

WEIGHTS, Analytical (Cat. 4)

WEIGHTS & MEASURES, Precision Standard (Cat. 7)

WELDING EQUIPMENT (Cat. 9)

WELLS, Thermocouple or Thermometer, see Thermowells (Cat. 1)

WICKS FOR WET BULBS (Cat. 9)

WIND DIRECTION and VELOCITY INDICATORS and/or RECORDERS, see Meteorological Instruments (Cat. 5)

WIND TUNNEL INSTRUMENTS (Cat. 5)

WIRE, Copper, Enameled (Cat. 9)

WIRE, Covered (Cat. 9)

WIRE, Fuse (Cat. 9)

WIRE, Insulated, all insulations except enameled and refractory (Cat. 9)

WIRE, Magnet (Cat. 9)

WIRE, Metal Shielded (Cat. 9)

WIRE, Miscellaneous, including Bismuth, Columbium, Illium, Molybdenum, Special Alloy Tantalum (Cat. 9)

WIRE, Nickel, Monel, and Nickel Chromium (Cat. 9)

WIRE, Refractory Insulated (Cat. 9)

WIRE, Resistance (Platinum or Platinum-Iridium)—Cat. 9

WIRE, Resistance, except Platinum and Platinum-Iridium (Cat. 9)

WIRE, Spring (Cat. 9)

WIRE, Stainless Steel, see Wire, Spring (Cat. 9)

WIRE, Swedish, Music, see Wire, Spring (Cat. 9)

WIRE, Thermocouple, Base Metal (Cat. 9)

WIRE, Thermocouple, Rare Metal (Cat. 9)

WIRE MEASURING GAGES, see Dimensional Gages (Cat. 6)

WIRE STRIPPERS (Cat. 8)

WIRE TESTING MACHINES (Cat. 6)

WIRES and THREAD, Gear Measuring (Cat. 6)

WORMS and WORM GEARING, see Gears, Precision (Cat. 8)

WOW METER (Cat. 3)

WRENCHES, Socket Instrument (Cat. 9)

WRENCHES, Torque (Cat. 9)

XEROGRAPHY EQUIPMENT (Cat. 7)

X-RAY CAMERAS, Diffraction (Cat. 4)

X-RAY EQUIPMENT—Cat. 6, (see also Flaw Detectors—Cat. 6)

X-RAY INTENSITY METERS (Cat. 4)

X-RAY MEASURING INSTRUMENTS (Cat. 4)

X-RAY VOLTMETERS, High Potential (Cat. 3)

X-Y RECORDERS (Cat. 3)

YOKES, Deflection for Cathode-ray Tubes (Cat. 8)

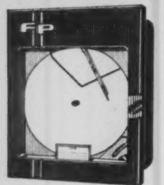
Z-ANGLE METERS, see Impedance Measuring Instruments (Cat. 3)

Catalog 1 starts on page 15
Catalog 2 starts on page 87
Catalog 3 starts on page 101
Catalog 4 starts on page 127
Catalog 5 starts on page 138
Catalog 6 starts on page 141
Catalog 7 starts on page 150
Catalog 8 starts on page 153
Catalog 9 starts on page 191

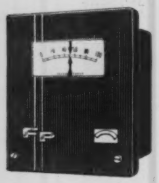
INSTRUMENTATION

for Process Measurement & Control

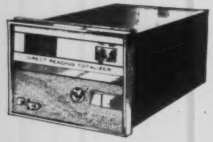
PANEL INSTRUMENTS



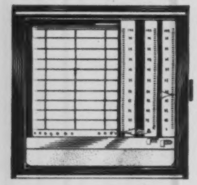
1100 Series
Large Case Recorders and Recording Controllers



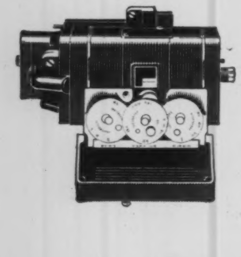
1450 Series
Fiber Glass Case Indicating Transmitter, Receiver and Controller



2800 Series
Digital Pulse Receiving Electronic Instruments

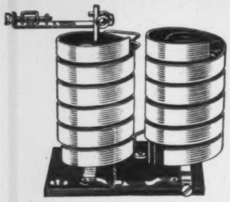


1200 & 1300 Series
Miniature Case Indicators, Recorders, Controllers

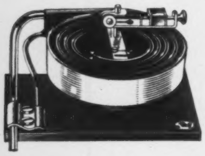


53P Series
Pneumatic Controllers

INSTRUMENTS for MEASURING PROCESS VARIABLES

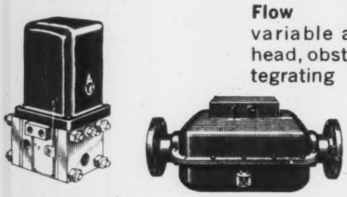


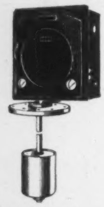
Temperature
fluid expansion type instruments



Pressure
for gauge, absolute, vacuum or differential measurements

Flow
variable area, variable head, obstructionless, integrating





Liquid Level
bubbler, variable head, cable & drum, ball float

Viscosity
single and two float, temperature compensated

Other Variables
including consistency, density, pH, O-R-P

Write for Catalog 310, "Process Instrumentation" for data on the entire line of F&P equipment . . . or for a discussion of your specific process control problem, call your nearest F&P representative.

Fischer & Porter Company
775 Warminster Road, Warminster, Pa.
In Canada: write Fischer & Porter (Canada) Ltd.,
2808 Jane Street, Toronto

FP FISCHER & PORTER COMPANY

A world-wide instrument company with plants in Australia, Canada, England, France, Germany, Holland, Mexico and the United States.

CIRCLE 3 ON READER-SERVICE CARD

Industrial Control Instrumentation

1962 BUYERS' GUIDE

1

SYSTEMS, DEVICES, AND ACCESSORIES
FOR MEASUREMENT AND CONTROL
OF TEMPERATURE, PRESSURE, FLOW AND OTHER
PRODUCTION VARIABLES IN THE
MANUFACTURING AND PROCESS INDUSTRIES

FOR CLEAN, DRY INSTRUMENT AIR

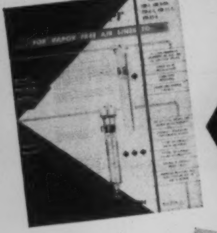
Send for these Bulletins

NEW HANKISON REFRIGIFILTERS

BULLETIN F-100 REFRIGIFILTER—for use where cooling water is not available.

Condensifilters

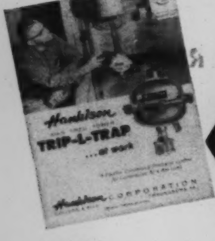
BULLETIN 4158 CONDENSIFILTER—includes integrated filter, dehydrator, separator, trap.



BULLETIN 103 DEHYDRAFILTER—for dead end and low flow service.

NEW SERIES-E Non-Cycling Air Dryers

BULLETIN 9300 SERIES E AIR DRYER—for air conditioning controls systems.



BULLETIN 502 TRIP-L-TRAP—for efficient, automatic condensate discharge.

Hankison
CORPORATION
College and Pike Canonsburg, Pa.
(Pittsburgh Area)

PREFERRED FOR PRACTICAL AIR DRYING

CIRCLE 4 ON READER-SERVICE CARD

AIR CLEANERS, Instrument

Adams Co R P
Air-Maze Div
Advance Industries
Anderson Co V D
Bellows-Valvair
Conoflow
Cuno Engrg Co
DeVilbiss Co
Dollinger Corp
Gas Drying Inc
Gelman Instrument
General Weld & Fab
Hankison Corp
Hannifin Co
Johnson Corp
Kahn & Co
Kieley & Mueller
King Engrg
Logan Engr
M-H Industrial Controls
Norgren Co C A
Phoenix Precision Instr
Pittsburgh Lectrodryer
Pneumafil Corp
Radex Corp
Robbins Aviation
Selas Corp of America
Taylor Instrument Cos
Trinity Equipment
Universal Dynamics Corp
Wells Inds
Wilkerson Corp
Zeks Industries Inc

AIR COMPRESSORS, Instrument

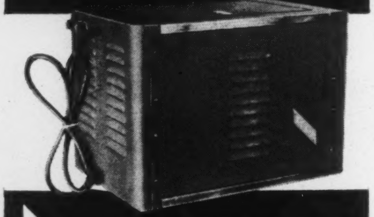
Airesearch Mfg Co
Air-Shields Inc
Ajax-National Air Comp
Allis-Chalmers
Applied Dynamics
Beach-Russ Co
Bell & Gossett Co
Cardair Div
Chemiquip
Cornelius Co
DeVilbiss Co
Dunham-Bush Inc
Eastern Industries
Edison Industries T A
Fairbanks-Morse
Gast Mfg Corp
Gelman Instrument
General Turbine
Great Lakes Mfg
Ingersoll-Rand Co
Johnson Service Co
Kahn & Co
Lammert & Mann Co
Lear Inc

When Using This Guide

look under the variable e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

PROTECT

your pneumatic control investment...



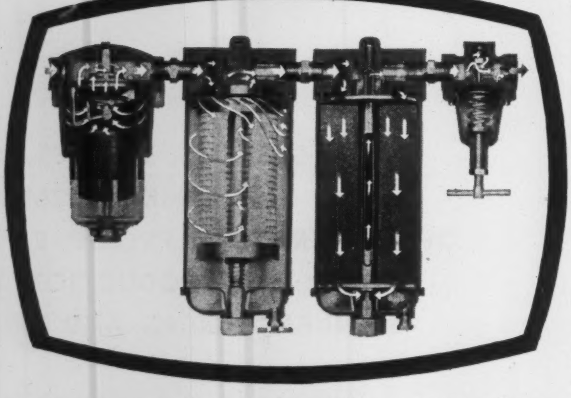
REFRIGERATED DRYERS

Eliminate moisture in compressed air
Reduce maintenance
Give continuous protection
Are self-contained
Have advanced "Thermal-Mass" heat exchanger*
*(patent applied for)
Are available in a full range of sizes.

ZEKS INDUSTRIES, Inc.
Edgemont, Pa. (215 EL 6-2244)

CIRCLE 5 ON READER-SERVICE CARD

***NEW* DEHYDRATOR**



package provides "instrument pure" compressed air only where needed

The WILKERSON "Chem-Guard"

is available singly or in a package as illustrated

EXCLUSIVE FEATURES

- ★ Lowest price
- ★ Dependability assured
- ★ Simplified, economical servicing
- ★ Built-in visible indication of affluent air relative humidity

WRITE TODAY

for complete information on the NEW "Chem-Guard", Circular #1043.

WILKERSON CORPORATION

Dedicated to keeping the NEW in pNEUmatics

1244 W. Mansfield, Englewood, Colo.

CIRCLE 6 ON READER-SERVICE CARD

BOILER ROOM INSTRUMENTS

BOILER METER

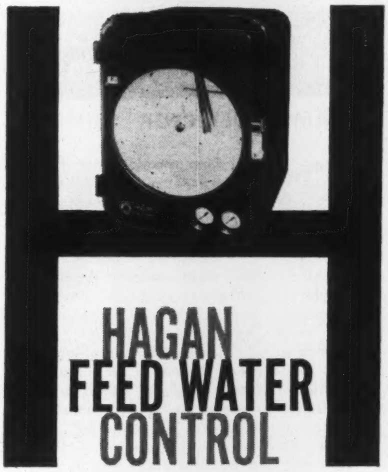
Steam Flow-Air Flow Ratio Meter is a combustion guide for optimum firing of all types of fuel. Measures and records rate of steam flow simultaneously with rate of combustion air flow. Adjusted so the two records coincide when optimum air is being supplied for combustion. May include a pneumatic controller and/or flue gas temperature record. Request Spec M61-1 for details.

FUEL-AIR RATIO METER

Measures and records rate of gas or oil flow simultaneously with rate of combustion air flow. Records coincide when optimum air is being supplied for combustion. Automatic control provided by addition of pneumatic controller in same case with measuring mechanisms. Request Spec M61-2 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 7 ON READER-SERVICE CARD



HAGAN FEED WATER CONTROL

The Hagan system of 3-element feed water control is compensated for variations in fluid density, a feature not available in most systems.

In addition, the system is automatically compensated for discrepancies between steam generated and steam measured. This means drum level is held at set point, even during blowdown or steam soot-blowing.

HAGAN CHEMICALS & CONTROLS, INC.
DIVISIONS: CALGON COMPANY, HALL LABORATORIES
HAGAN BUILDING, PITTSBURGH 30, PA.
In Canada: Hagan Corporation (Canada) Limited, Toronto
European Division: Via Flumendosa No. 13, Milano, Italy

CIRCLE 8 ON READER-SERVICE CARD

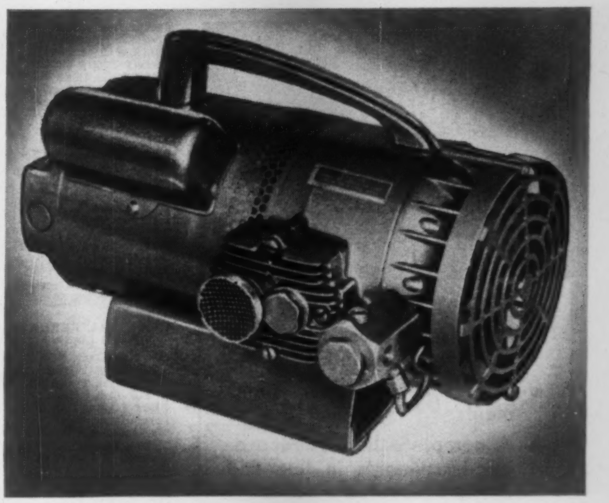
Leiman Bros Inc
Nash Engineering
Norgren Co C A
Penna Pump & Compressor
Ruska Instrument Corp
Sprague Engineering
Sterling Precision
Stratos Div
Westinghouse Air Brake

BEARING TEMPERATURE INSTRUMENTS, including Alarm

Advanced Dynamics
Aero Research Instr
Amot Controls Corp
Applied Electronics
Assembly Products Inc
Atkins Technical Inc
Burling Instrument
Control Equipment Corp
Control Indicating Corp
Data-Master Corp
Daystrom/Weston
Edison Industries T A
Electro Devices (Mo.)
Fielden Electronics
Foxboro Company
GE Apparatus Sales Div
General Railway Signal
Gilmore Industries
Hagan Chem & Controls
Hamilton Standard Div
Illinois Testing Labs
Indikon Inc
Leeds & Northrup
Lundell & Co
M-H Brown Instrs Div
M-H Industrial Controls
Manning Maxwell & Moore
Marlin-Rockwell Corp
Mercoid Corp
Moeller Instr
Murphy Mfg Inc
Nacimco Products
Nanmac Corp
Panellit Inc
Pickard & Burns
Princeton Div
Pyrometer Instr Co
Royco Instruments
Ruge Associates
Scam Instrument Corp
Thermo Electric
United Electric Controls
Victory Engineering
Weksler Instruments
West Instrument
Westronics Inc
Wheelco Indus Instrs
Williamson Development
Winslow Electronics, Inc.

BOILER ROOM INSTRUMENTS, including Condenser Leakage, Damper, Desuperheat, Draft, Feedwater, Specialties, Steam, Stoker, etc. (see also Combustion Safeguards, also Gas Analyzers)

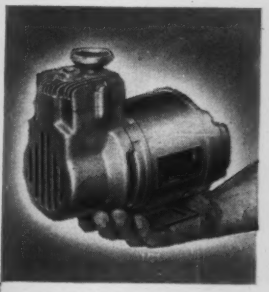
Anderson Greenwood & Co
Automatic Timing & Contls
Bacharach Indus Instr
Bailey Co Chas M
Bailey Meter Co
Barber-Colman
Barton Instrument
Bin-Dicator Co
Bristol Company
Cambridge Instrument
Cash Co A W
Chemiquip
Cramer Controls Corp
Davis Instruments
Daystrom/Weston
Defender Instrument
Diamond Power Specialty
Dwyer Mfg F W
Eclipse Fuel Engrg
Edison Industries T A
Electro-Mech
Ellison Draft Gage
Exactel Instrument
Fielden Electronics
GPE Controls
Gelman Instrument
General Controls
General Regulator Corp
Hagan Chem & Controls
Hays Corporation
Industrial Instrs Inc
Jerguson Gage & Valve
King Engrg
Leeds & Northrup
Leslie Co
M-H Industrial Controls
M-H Rubicon Instrs Div
Magnetrol Inc
Manning Maxwell & Moore
Mason Neilan
McDonnell & Miller
Meriam Instr Co
Mine Safety Appliances
North American Mfg
Photomation Inc
Powers Regulator
Powertron Ultrasonics
Pyrometer Instr Co
RDF Corp
Ranarex Div
Relcon Inc
Reliance Instr Div
Republic Flow Meters
Scam Instrument Corp
Scrayco Mfg
Sentry Equipment
Sirco Products Inc
Spence Engrg Co
Standard Instrument



Oil-Free AIR FOR INSTRUMENTATION

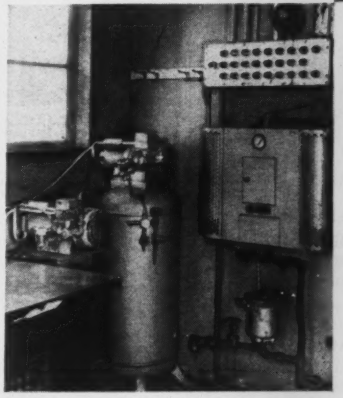
For instrument control with compressed air, patented B&G Oil-less Compressors offer outstanding, exclusive advantages.

They deliver air *completely oil-free!* Carbon-graphite piston rings and skirts need no lubrication; bearings are grease-packed and sealed for life. Numerous design and construction features assure dependable delivery of cleaner, cooler, drier air and smoother operation.



B&G Oil-less Compressors can be located at the site of the control, eliminating long pipe lines which may contaminate the air with dirt and condensation.

Available in 58 models... portable, tank mounted, motor and gas-engine driven, 1/12 to 3/4 H.P., up to 6.57 CFM, up to 190 psi. Vacuum: 27.5".



Typical application to air drier

MINIATURE!

1/12 H.P. Oil-less Motor Compressor and Vacuum Pump

Fits in the palm of your hand, yet delivers much more free air than any current design of the same horsepower. It is capable of continuous operation at pressures up to 65 psi.—has infinite applications for instrument control, process agitation and motive power.

Oil-less AIR COMPRESSORS

BELL & GOSSETT COMPANY
Dept. GV-84, Morton Grove, Illinois

CIRCLE 9 ON READER-SERVICE CARD

BOILER ROOM INSTRUMENTS

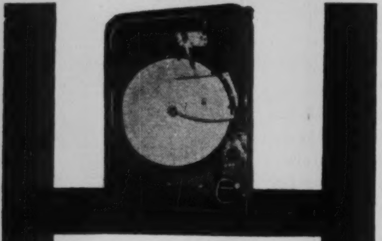
- Electrolytic conductivity apparatus for steam and condensate degassing.
- Boiler Feedwater measurements.
- A complete line of recording instruments in line and battery powered models.
- Salinity detecting and controlling equipment.
- Condenser leakage detectors.
- Dissolved oxygen and dissolved hydrogen analyzers

Write for Complete Catalog

Industrial Instruments Inc.

89 Commerce Road Cedar Grove Essex County N J

CIRCLE 10 ON READER-SERVICE CARD



HAGAN CONDUCTIVITY METERS

The Hagan Model H-O may be used as a single instrument, or up to four different conductivity measurements may be recorded in a single meter case. Provides continuous reliable measurement for a moderate investment.

Temperature compensation is continuous and automatic, and limit switches may be installed to activate alarms in applications where drastic changes in dissolved solids concentrations may damage equipment.

HAGAN CHEMICALS & CONTROLS, INC.

DIVISIONS: CALGON COMPANY, HALL LABORATORIES

HAGAN BUILDING, PITTSBURGH 30, PA.
In Canada: Hagan Corporation (Canada) Limited, Toronto
European Division: Via Flumendosa No. 13, Milano, Italy

CIRCLE 11 ON READER-SERVICE CARD

Taylor Instrument Cos
Thermco Instrument
Uehling Instrument
Victory Engrg Corp
Warrick Co Chas F
Waters Associates
Weksler Instruments
Westronics Inc
Yarnall-Waring

B.T.U. INDICATORS

Air Conditioning Equip
American Meter Co
Bailey Meter Co
Computers Inc
Devar Systems
Foxboro Company
Hagan Chem & Controls
Hays Corporation
Reliance Instr Div
Selas Corp of America
Westronics Inc

CHEMICAL FEEDERS, Dry and Liquid

American Meter Co
Associated Control
Automation Timing & Contls
B-I-F Industries
Clark-Cooper
CompuDyne Corp
Dynametrics Corp
Exline Engrg
Fischer & Porter Co
Fuller Co
Glass Instruments Inc
Gump Co B F
Hagan Chem & Controls
Hills-McCanna
Houdaille Industries
Jeffrey Mfg
Lapp Insulator
Lewis Instr
Loe Engrg Co
Madden Corp
Milton Roy Co
Natl Instrument Co
Permutit Co
Republic Flow Meters
Research Appliance Co
Richardson Scale Co
Schutte & Koerting
Simplex Valve & Meter
Syntron Co
Thayer Scale Corp
Wallace & Tiernan

CLOCKS, Master or Primary

Abacus Inc
Alina Corp
American Electronics Inc
American Meter Co
Bulova Watch Co
Chrono-Log Corp
Cincinnati Time Recorder
Computer Control
Computer Measurements
Cubic Corp
Dymec
Edwards Co Inc
Electro Instruments
Gaertner Scientific Corp
GE Clock & Timer
General Radio
Geotechnical Corp
Hamilton Watch Co
Haydon Co A W
Hermes Electronics
Houston-Fearless Corp
Ingraham Co
Litton Systems
National Standard Elx
Natl Time & Signal
Orator Chronograph
Pickard & Burns
Rockwell Mfg Co
Rohde & Schwarz
Simplex Time Recorder
Standard Electric Time
Stromberg Div
Taller and Cooper Inc
Times Facsimile
Waltham Precision Instr
Wickes Engrg & Constr

CLOCKS, Minute Impulse and Synchronous

Abacus Inc
Alina Corp
Anadex Instruments Inc
Automatic Control Co
Automatic Timing & Contls
Borg Instruments
Bulova Watch Co
Chrono-Log Corp
Cincinnati Time Recorder
Computer Control
Control Equipment Corp
Cramer Controls
Cubic Corp
Datex Corp
Digital Equipment
DYMEC
Edwards Co Inc
Electro Instruments
Electronic Controls Inc
GE Clock & Timer
General Controls
General Devices
Gyrex Corp
Hamilton Watch Co
Haydon Co A W
Haydon Instrument
Houston-Fearless Corp
Ingraham Co
Lafayette Instr
Litton Systems
Lundell & Co
Micronics Div
Natl Time & Signal
Navigation Computer Corp
Orator Chronograph
Parabam Inc
Photocon Research
Presin Co
Rockwell Mfg Co
Sierra Research Corp
Simplex Time Recorder
Standard Electric Time
Stromberg Div
Sunshine Scientific
Syracuse Electronics
Taller and Cooper Inc
Tempo Instrument
Thompson Clock Co
Times Facsimile
United Electrodynamics
Waltham Precision Instr
Wang Laboratories

CLOCKS, Secondary

Abacus Inc
Alina Corp
Automatic Timing & Contls
Bulova Watch Co
Cincinnati Time Recorder
Edwards Co Inc
Electro Instruments
General Devices
Geotechnical Corp
Hamilton Watch Co
Haydon Instr Co
Micronics Div
Natl Time & Signal
PIC Design Corp
Rockwell Mfg Co
Simplex Time Recorder
Standard Electric Time
Stromberg Div
Tempo Instrument
Valpey Crystal Corp

CLOCKS, Standard

Abacus Inc
Alina Corp
Argonaut Asso
Automatic Timing & Contls
Bulova Watch Co
Cincinnati Time Recorder
Edwards Co Inc
Electro Instruments
GE Clock & Timer
General Devices
General Radio
Geotechnical Corp
Hamilton Watch Co
Haydon Instr Co
Hermes Electronics
Hewlitt-Packard
Ingraham Co
National Standard Elx
Natl Time & Signal
PIC Design Corp
Research Controls
Rockwell Mfg Co
Rohde & Schwarz
Simplex Time Recorder
Standard Electric Time
Stromberg Div
TRG Inc

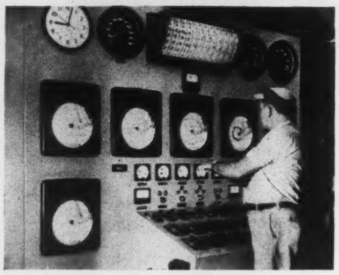
CLOCKS, Stop

Alina Corp
Automatic Timing & Contls
Burke & James
Cramer Controls
Dimco-Gray
Ducommun Co M
General Devices
Hamilton Watch Co
Haydon Co A W
Klinger Scientific
Micronics Div
Natl Time & Signal
Precision Scientific Co
Scientific Industries
Soiltest Inc
Standard Electric Time
Stoelting Co C H
Thompson Clock Co

COMBUSTION CONTROL EQUIPMENT (See also Boiler Room Instruments)

Aeronaut & Instr Div
Automatic Switch Co
Automatic Timing & Contls
Bailey Meter Co
Cambridge Instrument
Cash Co A W
Cutler-Hammer
Davis Instruments
Daystrom/Weston
Defender Instrument
Diamond Power Specialty
Dwyer Mfg F W
Eclipse Fuel Engrg
Ellison Draft Gage
Farris Engrg Corp
Fenwal Inc
Fielden Electronics
Foxboro Company
GPE Controls
General Controls
General Dynamics/Elx
General Regulator
Hagan Chem & Controls
Hays Corporation
Industrial Instruments
Industrial Nucleonics
Kieley & Mueller
Korfund Co
Leeds & Northrup
Maryland Telecomm
Mine Safety Appliances
North American Mfg
Panellit
Partlow Corp
Photomation Inc
Protection Controls
Pyrometer Instr Co
Ranarex Div
Relcon Inc
Reliance Instr Div
Republic Flow Meters
Selas Corp of America
Standard Instrument

COMBUSTION CONTROL



Bailey Automatic Combustion Control results in fuel savings; increased boiler capacity; reduction of boiler and furnace maintenance; more time for operators to devote to general station maintenance; and improvement in the general character of service.

The basic principle of operation is to control fuel and air for combustion simultaneously from changes in steam pressure.

Electric control or pneumatic control available to fit individual application requirements.

Request Bulletin 510 for pulverized coal firing; Bulletin 514 for cyclone firing; Bulletin 515 for stoker firing; Bulletin 1023 for oil and gas firing; and Bulletin E74-1 for electric control system.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 12 ON READER-SERVICE CARD

COMBUSTION SAFEGUARDS

FLĀMON DETECTOR

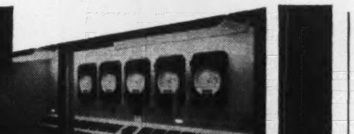
For monitoring fuel burning equipment. Senses the presence of a flame and operates an internal relay or transmits a signal to a static switch. Provides services for alarm, indication, and/or tripping of fuel when used in conjunction with necessary auxiliaries. Responds only to flame under surveillance, not to adjacent flames or to infrared radiation from glowing refractories. Suitable for use in areas with ambient temperatures from —20F to +150F. Request Spec E66-2 for details on **FLĀMON** Detector and Bulletin 760-1 for details on **Bailey 760 Burner Light-off Systems.**

COMBUSTIBLES ANALYZER

Approved by Factory Mutual Engineering Division for use as combustion safeguard on gas-fired installations. Provides continuous measurement of combustibles content of flue gases. Fast speed of response. Request Spec E65-3 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 13 ON READER-SERVICE CARD



HAGAN COMBUSTION CONTROLS

Hagan pneumatic or solid state electronic combustion control systems give the ultimate in accurate, dependable control. Hagan systems include basic combustion control, 3-element feedwater control, pump recirculation control and steam temperature control.

Hagan systems, on both central station and industrial boilers, have established records for economy, reliability and very low maintenance costs.

HAGAN CHEMICALS & CONTROLS, INC.
DIVISIONS: CALGON COMPANY, HALL LABORATORIES
HAGAN BUILDING, PITTSBURGH 30, PA.
In Canada: Hagan Corporation (Canada) Limited, Toronto
European Division: Via Flumendosa No. 13, Milano, Italy

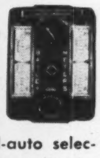
CIRCLE 14 ON READER-SERVICE CARD

PNEUMATIC COMPONENTS

MANUAL LOADER

Transmits a pneumatic signal to operate or position remote instruments, computing relays, or power units. Indicates transmitted pneumatic signal. Second pointer assembly may be included for monitoring. Standard SAMA signal ranges of 3-15 or 3-27 psig. Request Spec P99-2 for details.

SELECTOR STATION



Provides all necessary indications and controls for "bumpless" transfer and for complete automatic or hand operation of a pneumatic control system. Used as a trend indicator, hand-auto selector, and set point or biasing adjuster. May include as many as four indications of vital control system signals. Vibration and shockproof construction makes the **MINI-LINE** Selector Station suitable for marine, mobile, and other severe operating service. Request Spec P99-1 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

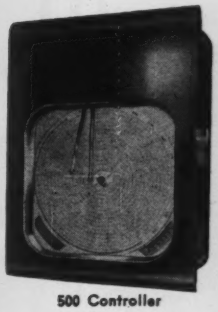
CIRCLE 15 ON READER-SERVICE CARD

Automatic Controllers

Bristol Controllers are made in a wide variety of models including air-operated, electronic, and electric types.

Five kinds of control action: on-off, proportional, reset, derivative, and reset plus derivative, also autoset and cascade controllers, ratio controllers, pneumatic transmission, miniature instruments, program controllers, electronic potentiometers. For temperatures up to 4000F, pressure, absolute pressure, vacuum, draft, liquid level, flow, pH, humidity, time cycle and program, and control panels.

Write for Bulletins A130, DM050, A115, B226, and C305.



500 Controller Series

BRISTOL COMPANY
112 Bristol Rd., Waterbury 20, Conn.

CIRCLE 16 ON READER-SERVICE CARD

Thermco Instrument Corp
Victory Engrg Corp
Waters Associates
Westronics Inc
Wheelco Indus Instrs
Worner Electronic Devices

COMBUSTION SAFEGUARDS, including Flame Failure

Bailey Meter Co
Barber-Colman
Crump Instrument
Dage Television
Davis Instruments
Diamond Power Specialty
Dietz Co Henry G
Dresser Elx/SIE Div
Drying Systems Co
Eclipse Fuel Engrg
Edison Industries T A
Electro-Mech
Energy Kontrols
Falcon Alarm Co
General Controls
General Regulator
Industrial Nucleonics
M-H Apparatus Contls
M-H Brown Instrs Div
MCIlvaine O T
Partlow Corp
Photomation Inc
Protection Controls
Ranarex Div
Relcon Inc
Reliance Instr Div
Security Valve Co
Selas Corp of America
Sirco Products Inc
Texas Instruments Inc
Wheelco Indus Instrs

COMPUTERS, Process Control

Abacus Inc
Acoustica Assoc
Astrosystems Inc
Automation Dynamics
Belock Instrument
Computer Control
Control Corp
Control Data Corp
Control Equipment Corp
Daystrom Control Sys
Digital Equipment
DJECO
Dresser Elx/SIE Div
Electro Logic Corp
Electropac Inc
Electronic Associates
Feedback Controls Inc
Fischer & Porter Co
GE Ind Control Dept
Gulton Industries Inc
Hamilton Standard Div
Hughes Aircraft
Industrial Nucleonics
Kearfott Div
Land-Air Inc
Leeds and Northrup
Litton Systems
Lockheed Electronics
M-H Military Prods Grp.
M-H Special Systems Div
Maryland Telecomm
Monitor Systems Inc
Newton Co
Performance Measurements
Philbrick Researches
Philco Corp
Potter Instr Co
Power Tronic Systems
R C A Corp
Reeves Instr Corp
Rescon Electronics
Servomechanism Inc
Sylvania Electronic Sys
Telectro Industries
Tempo Instrument

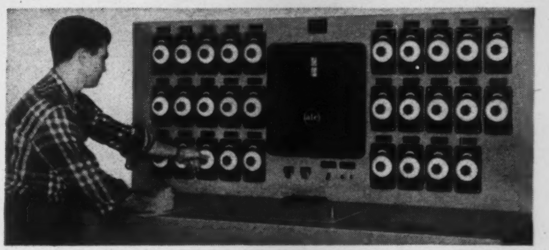
CONSISTENCY REGULATORS, Pulp and Paper

Automatic Timing & Contls
Automation Products
Brabender Instr C W
Cash Valve Mfg
Curtiss Wright
DeZurik Corp
Fischer & Porter Co
General Regulator

CONTROL SYSTEMS, General-purpose, Air-operated

Airborne Instr Lab
Airesearch Mfg Div
American Meter Co
Amot Controls Corp
Astra Technical Instr
Atwood & Morrill Co
Automatic Control Co
Automatic Switch Co
Automation Devices
Automation Dynamics
B-I-F Industries
Bailey Co Chas M
Bailey Meter Co
Baird Atomic
Barworth Inc
Bellows-Valvair
Bendix Utica Div
Bernco Engrg Corp
Black, Sivalls & Bryson
Bobrick Aero Missile
Boonshaft and Fuchs
Bristol Co
Brooks Instrument
California Controls
Cash Co A W
Cash Valve Mfg
Chemiquip
CompuDyne Corp
Conoflow
Control Circuits Inc
Control Panel Corp
Custom Comp Switches
Customline Control Panel
Cutler-Hammer
Daystrom/Weston
Designers for Industry
Dole Valve Co
Dynametrics Corp
Electro-Mech
Electronic Dev Corp
Fischer & Porter Co
Fisher Governor
Foxboro Company
Fulton Sylphon Div
General Controls Co
General Regulator
Hagan Chem & Controls
Hannifin Co
Herion Inc
Hughes Aircraft
Hunt Valve Co
Industrial Engrg Corp
Infilco Inc
Intelex Systems Inc
Johnson Service Co
Kieley & Mueller
Kollsman Instr Corp
Lear Inc
Leeds & Northrup
Leonard Inc, Wallace O
Leslie Co
M-H Apparatus Contls Div
M-H Brown Instrs Div
M-H Military Prods Grp.
Manning Maxwell & Moore
Mason Neilan
Mercoid Corp
Modernair Corp
Moore Products Co
OPW-Jordan
Panellit Inc
Partlow Corp
Phoenix Precision Instr
Pneu-Hydro Valve
Powers Regulator
Ramsey Engrg Co
Reeves Pulley Co
Relcon Inc
Reliance Instr Div
Republic Flow Meters
Research Controls
Robertshaw-Fulton Cont
Ronan Panel Co
Scientific Instrument
Scott Aviation Corp
Sirco Products Inc
Specialties Inc
Sterling Instrument Div
Talley Corp
Tapco Group
Taylor Instrument Cos
Telectro Industries
Trerice Co H O

CONTROL SYSTEMS

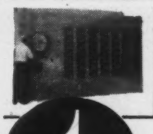


ELECTRONIC • PNEUMATIC • HYDRAULIC • ELECTRO-MECHANICAL

To realize economy, efficiency and higher plant profits, management is looking more and more to correctly applied automatic control.

Backed by years of research and field experience, ATC is uniquely equipped to help you in the design and manufacture of complete control systems for machines and processes. Full familiarity for execution to industry standards such as JIC, NEMA, etc.

WRITE FOR NEW CATALOG



AUTOMATION COMPONENTS and CONTROL SYSTEMS
atc

AUTOMATIC TIMING & CONTROLS, INC.
KING OF PRUSSIA, PENNA.
A Subsidiary of American Manufacturing Company, Inc.

CIRCLE 17 ON READER-SERVICE CARD

ACCURACY and DEPENDABILITY

from Primary to Final Control Element

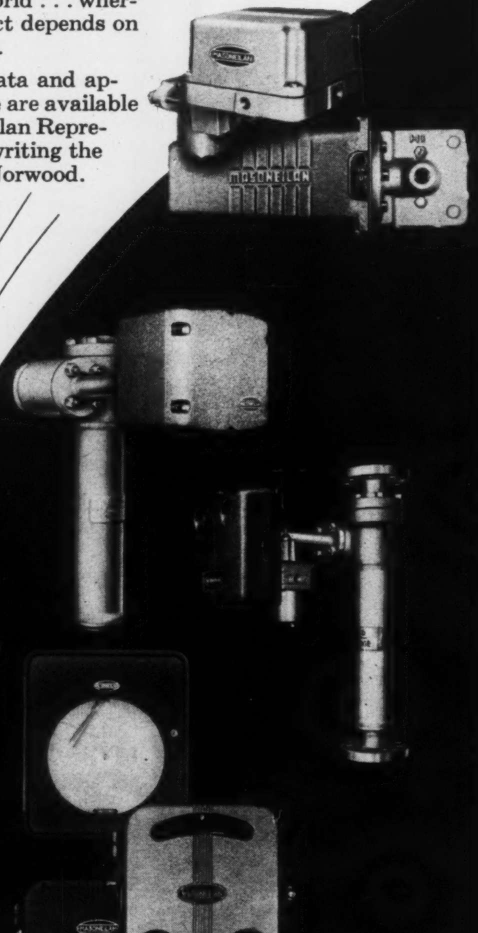
Masoneilan Controls are engineered to provide the accuracy and dependability essential to economical control of pressure, flow, liquid level and temperature.

Many of these units offer unusual versatility and advanced design features which make them preferred all over the world . . . wherever quality of product depends on quality of equipment.

Complete catalog data and application assistance are available from any Masoneilan Representative or by writing the home office at Norwood.

4"
MASONEILAN
STEEL

Control Valves
and Positioners



Controllers and
Transmitters

MASONEILAN

REG. U.S. PAT. OFF.

Products that Work for Your Profit

MASON-NEILAN

Division of Worthington Corporation

55 NAHATAN STREET, NORWOOD, MASSACHUSETTS, U. S. A.

CIRCLE 18 ON READER-SERVICE CARD

MASON-NEILAN
Offers Complete
Information,
Application
Assistance and
Service

Contact the
Representative
located nearest you . . .

ALABAMA, Mobile
Frank A. Thomas Co., 1805 Liberty St.
ARIZONA, Phoenix
Bews & Company, 4513 E. Avalon Drive
CALIFORNIA, Los Angeles
Pacific Controls, Inc., 2822 E. Olympic Blvd.
CALIFORNIA, San Francisco
D. A. Stevenson & Associates, 1485 Bayshore Blvd.
COLORADO, Denver
Denver Engineering Sales Co., 2421 So. University Blvd.
FLORIDA, Jacksonville
Malcolm Duncan & Associates, 5719 Salerno Road
GEORGIA, Atlanta
Ward K. Stallings Co., 3120 Maple Drive, N. E.
HAWAII, Honolulu
Gaspro, Ltd., 2305 Dillingham Blvd.
ILLINOIS, Chicago
Mason-Neilan, 64 Old Orchard, Skokie
IOWA, Des Moines
C. W. Miller, 3215 Forest Ave.
KENTUCKY, Anchorage
Whinery Engineering Co., Glenbrook Road
LOUISIANA, New Orleans
Coastal Engineering Corp., 1500 Tchoupitoulas St.
MICHIGAN, Detroit
H. H. Barnum Co., 12201 Merriman Rd., Livonia
MINNESOTA, St. Paul
Fuel Economy Engineering Co., 510 New York Bldg.
MISSOURI, St. Louis
O'Brien Equipment Co., 2832 Olive St.
NEW JERSEY, Upper Montclair
Mason-Neilan, 266 Bellevue Ave.
NEW YORK, Buffalo
R. S. Brookman Assoc., 25 Anderson Rd., Cheektowaga
NEW YORK, New York City
Mason-Neilan, 375 Park Ave.
NEW YORK, Syracuse
Mason-Neilan, 9 East Genesee St., Skaneateles
NORTH CAROLINA, Charlotte
Systems Service Corporation, 3811 St. Mary Ave.
OHIO, Cleveland
Process Valve & Equipment Co., 4517 Brookpark Road
OKLAHOMA, Tulsa
Ernie Graves Co., 111 East 14th St.
OREGON, Portland
Fryer & Co., 2035 Southwest 58th Ave.
PENNSYLVANIA, Philadelphia
Mason-Neilan, 11 Union Ave., Bala-Cynwyd
PENNSYLVANIA, Pittsburgh
Mason-Neilan, 3833 Willow Ave.
TEXAS, Corpus Christi
Maintenance Engineering Corp., 225 Campbell Lane
TEXAS, Houston
Maintenance Engineering Corp., 3711 Clinton Drive
TEXAS, Midland
Basin Engineering Corporation, Farm Road 715
UTAH, Salt Lake City
Controls Systems, Inc., 455 East 4th South
VIRGINIA, Richmond
Mason-Neilan, 6002 West Broad St.

MASONEILAN

Products that Work for Your Profit
MASON-NEILAN
Division of Worthington Corporation
55 NAHATAN ST., NORWOOD, MASS., U.S.A.

Ultronix Inc
United Aircraft Prods
United Electric Controls
Universal Match
U S Controls Inc
U S Electrical Motors
Waugh Engineering Co
Westinghouse Air Brake
Weston Hydraulics Ltd

CONTROL SYSTEMS, General-purpose, Electrical or Electronic

Abacus Inc
Abrams Instrument
Acoustica Assoc
Advanced Dynamics
Advanced Research
Aeroflex Corp
Aeronaut & Instr Div
Airborne Accessories
Airborne Instr Lab
Airesearch Mfg Div
Airpax Electronics
Allegany Instrument
Allen-Bradley
Allied Research
Allis-Chalmers
American Data Div
Amer Meas & Control
American Pamcor Inc
Amglo Corp
Anadex Instruments Inc
Analogue Controls Inc
Applachian Electronic
Applied Electronics
Applied Science Corp
Assembly Products Inc
Astra Technical Instr
Astrosystems Inc
Atkins Technical Inc
Atlantic Research
Atronic Products
Automatic Control Co
Automatic Electric
Automatic Switch Co
Automatio Timing & Contls
Automation Dev Corp
Automation Dynamics
Automation Electronics
Automation Inc
Autonetics
Autotron Ino
Avien Inc
B-I-F Industries
B/W Controllers
Babcock Electronics Corp
Babcock Radio Engrg
Bailey Meter Co
Baird Atomic
Baldwin-Lima-Hamilton
Barber-Colman
Barnes Development Co
Bayside Timers
Belock Instrument
Bendix Montrose Div
Bently Scientific
Berkeley Dynamics
Bernco Engrg Corp
Bill Jack Scientific
Bin-Dicator Co
Blue M Electric
Boonshaft and Fuchs
Borg-Warner Controls
Bowser Inc
Brach Mfg
Bristol Co
Brooks Instrument
Buffalo Meter Co
Bulova Research
Burroughs Corp
Bush Associates G F
Bytrex Corp
Cargill Detroit
Carmody Corp
Cash Valve Mfg
Cimron Corp
Cincinnati Time Recorder
Clark Controller
CompuDyne Corp
Computer Control
Computer Measurements
Computers Inc
Conoflow
Consol Controls
Consol Electrodynamics
Consolidated Airborne
Consolidated Systems
Control Circuits Inc
Control Corp
Control Data Corp
Control Electronics
Control Engineering
Control Equipment Corp
Control Indicating Corp
Control Panel Corp
Control Technology
Controls Co of Amer
Contronics
Cook Electric Co
Corbett Science Labs
Cox Instruments
Cramer Div
Cubic Corp
Cunningham Son & Co
Curtiss-Wright IMI
Custom Comp Switches
Customline Control Panel
Cutler-Hammer
Dalmotor Div
Data Tech
Datalog Div
Datex Corp
Daystrom/Control Sys
Daystrom/Mil Elx
Daystrom/Weston
Daystrom/Wiancko
Decker Corp
Defender Instrument
Delco Radio
Designers for Industry
Designs for Tomorrow
Detroit Controls
Devar Systems
Devco Engrg Inc
Diamond Power Specialty
Di/An Controls
Diatron Inc
Dickson Co
Digital Equipment
DJECO
Donner Scientific
Dorsett Electronics Inc
Dresser Elx/SIE Div
Drexel Dynamics Corp
Dunn Engrg Assocs
Dymec
Dynametrics Corp
Dynapar Corp
Dynatronics Inc
Dynex Inc
Eagle Signal
Eastern Industries
Edison Industries T A
Eldorado Electronics
Electric Eye Equip
Electric Regulator
Electro Instruments
Electro Precision
Electro Products Labs
Electrodynamic Instr
Electro-Logic Corp
Electromation Co
Electro-Mech
Electro-Mechanical Res
Electropac Inc
Electro-Seal Corp
Electrosnap
Electronic Associates
Electronic Controls Inc
Electronic Process Corp
Electronic Products
Electronic Systems Dev
Ellison Draft Gage
Energy Kontrols
Engelhard Industries
Engis Equipment
Engler Instrument
Epic Inc
Epsco-West
Erie Mfg Co
Erie-Pacific Div
Erie Resistor
Fairbanks-Morse
Fairfield Engrg
Farmer Electric
Federal Mfg & Engrg
Feedback Controls Inc
Femco Inc
Fenwal Inc
Ferranti Electric
Fielden Electronics
Fischer & Porter Co
Fisher Governor
Flo-Tronics Inc
Foley Electronics Co
Foxboro Company
Fuller Co
GPE Controls
Gemco Electric Co
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General Controls Co
General Devices
General Dynamics/Elx
GE Apparatus Sales Div
G E Computer Dept
G E Gen Purpose Contr
GE Heavy Mil Equip
G E Specialty Control
GE X-Ray Dept
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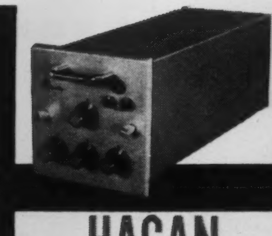
General Railway Signal
General Regulator
General Time Central Res
Genesys Corp
Giannini Controls Corp
Guardian Electric
Gulton Industries
Hagan Chem & Contrls
Haledy Electronics
Hallamore Electronics
Hamilton Standard Div
Harmon Electronics
Hartman Electrical Mfg
Hastings-Raydist Inc
Haydon Co A W
Hays Corporation
Healy Ruff Co
Heller Co Gerald K
Herion Inc
Hersey-Sparling Meter Co
Hoover Electric Co
Hoover Electronics
Howe Scale Co
Howell Instrs
Hughes Products
Hydel Inc
Industrial Control Co
Industrial Electronic
Industrial Engrg Corp
Industrial Filter & Pump
Industrial Nucleonics
Infilco Inc
Infrared Industries
Instruments Inc
Inteotron Inc
Johnson Service Co
Jordan Controls
Kahn & Co
Kavamil Co
Kearfott Div
Kellogg Switchboard
Kollsman Instr Corp
Land-Air Inc
Larson Instrument
Leach Corporation
Leeds & Northrup
Leesona Corp
Leonard Inc, Wallace O
Librascope Div
Ling Electronics
Link Div
Lynch Communication
M-H Apparatus Contls
M-H Boston Div
M-H Brown Instrs Div
M-H Military Prods Grp
Machinery Electrification
MacLeod Inst Corp
MacLaren & Co F B
Magnavox Co
Magnetic Controls Co
Magnetic Instr Co
Manning Maxwell & Moore
Maryland Telecomm
McIlvaine O T
Melcor Electronics Corp
Mercoid Corp
Micro Gee Products
Microloc Corp
Midwest Automatic Inc
Milgo Electronics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Nacimco Products
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Norbatrol Electronics
North Electric Co
Northern Radio Co
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Norwood Controls
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Oilgear Co
Opad Electric Co
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Ovitron Corp
Pacific Electro Magnetic
Panellit Inc
Partlow Corp
Pearce-Simpson Inc
Performance Measurements
Permoflux Products
Peschel Electronics
Philco Corp
Photobell Co
Photomation Inc
Pickard & Burns
Pitometer Log Corp
Plug-In Instruments Inc
Post Electronic
Potter Aeronautical
Potter Instr Co
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Power Tronic Systems
Princeton Div
Protection Controls
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Pyrometer Instr Co
Quindar Electronics
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R C A Defense Electronic
Radionics Incorporated
Ram Meter Inc
Ramsey Engrg Co
Ransom Research
Raytheon Aero/Weapons
Reeves Instr Corp
Regent Controls
Reliance Elect & Engrg
Reliance Instr Div
Republic Flow Meters
Research Industrial Lab
Revere Corp of Amer
Rheem Electronics
Rockwell Mfg Co
Rodale Electronics
Ronan Panel Co
Ruge Associates
Scalco Controls
Scientific Instrument
Scrayco Mfg Co
Security Controls Inc
Security Devices Lab
Serdex Inc
Servo Systems Co
Servo-Tek Products
Servomechanism Inc
Sierra Research Corp
Simmonds Aerocessories
Simplex Time Recorder
Sirco Products Inc
Space Electronics
Special Instruments Lab
Specialties Inc
Spectra Electronics
Spectrol Electronics
Square D Co
Standard Instrument
Sterling Instrument Div
Stromberg Div
Sunshine Scientific
Superior Carbon Prod
Swan Electric Co
Swartwout Div
Sylvania Electronic Sys
Syracuse Electronics
Taller and Cooper Inc
Talley Corp
Tapco Div
Tapeswitch Corp
Taylor Instrument Cos
Technitrol Engrg
Telechrome Mfg Corp
Telectro Industries
Tele-Dynamics Div
Telex/Lumen
Teller Co
Tempo Instrument
Tenney Engineering
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Thermo Electric
Thermalyne Corp
Thomas Engrg Inc
Thompson-Ramo-Wooldridge
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Tracerlab Inc
Trerice Co H O
Triner Scale & Mfg
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United Aero Prod
United Aircraft Prods
United Control Corp
United Control Systems
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United Electrodynamics
United Engineers Inc
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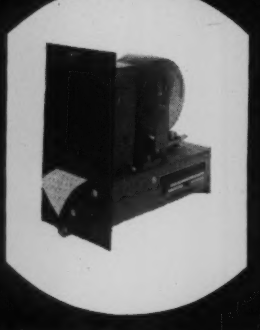

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WE-Nuclear & Power Control
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Weston Hydraulics Ltd
Westronics Inc
Wheelco Indus Instrs
Wheelock Signals Inc
Wiancko Engrg Co
Wickes Engrg & Constr
Williamson Development
Wilson Co G C
Worner Electronic Devices

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Acme Industrial Co
Acoustica Assoc
Advanced Research
Aeroflex Corp
Airborne Accessories
Airborne Instr Lab
Airesearch Mfg Div
Allen-Bradley
Allied Research
Allis Chalmers
Alpha Tech Products
American Data Div
Amer Meas & Control
Analogue Controls Inc
Applied Electronics
Applied Science Corp
ASEA Electric Inc
Assembly Products Inc
Astra Technical Instr
Astromics Div
Astrosystems Inc
Auth Electric
Automatic Control Co
Automatic Electric
Automatic Switch Co
Automatic Timing & Contls
Automation Dev Corp
Automation Dynamics
Automation Electronics
Avien Inc
B-I-F Industries
Babcock Electronics Corp
Babcock Radio Engrg
Bailey Co Chas M
Bailey Meter Co
Baird-Atomic
Baldwin-Lima-Hamilton
Barnes Development Co
Belock Instrument
Bently Scientific
Berkeley Dynamics
Bernco Engrg Corp
Bin-Dicator Co
Black Sivalls & Bryson
Boonshaft and Fuchs
Bowser Inc
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Brach Mfg
Bristol Co
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Budd Co Inst Div
Bulova Research
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Bush Associates G F
Cargill Detroit
Cash Co A W
Cash Valve Mfg
Cimron Corp
Cincinnati Time Recorder
CompuDyne Corp
Conoflow
Consol Controls
Consol Electrodynamics
Consolidated Airborne
Consolidated Systems
Control Circuits Inc
Control Data Corp
Control Engineering
Control Indicating Corp
Control Panel Corp
Control Technology
Controls Co of Amer
Cook Electric Co
Corbett Science Labs
Cox Instruments
Cramer Div
Crump Instrument
Cubic Corp
Cunningham Son & Co
Curtiss-Wright IMI
Custom Comp Switches
Customline Control Panel
Cutler-Hammer
Dalmotor Div
Data Tech
Datalog Div
Datex Corp
Daystrom/Mil Elx
Daystrom/Weston
Daytronic Corp
Decker Corp
Defender Instrument
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Diamond Power Specialty
Diatron Inc
Dickson Co
Dillon & Co W C
Dittmore-Freimuth
Dresser Elx/SIE Div
Drexel Dynamics Corp
Dunn Engrg Assocs
Dynametrics Corp
Dynatronics Inc
Dynex Inc
Eagle Signal
Eastern Industries
Edison Industries T A
Electric Eye Equip
Electric Regulator
Electro Development
Electro-Mech
Electro Products Labs
Electrodynamic Instr
Electromation Co
Electronic Controls Inc
Electronic Products
Electro-Seal Corp
Electrosnap
Energy Kontrols
Engis Equipment
Engler Instrument
Epic Inc
Erie Mfg Co
Feedback Controls Inc
Fenwal Inc
Ferguson Hille
Fielden Electronics
Fischer & Porter Co
Foley Electronics Co
Foxboro Company
Fuller Co
Fulton Sylphon Div
GPE Controls
GEMCO Electric Co
General Controls
General Devices
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GE Gen Purpose Contr
GE Specialty Control
General Mills Inc
General Railway Signal
General Regulator
General Time Central Res
Genesys Corp
Giannini Controls Corp
Globe Ind
Guardian Electric
Gulton Industries
Hagan Chem & Contrls
Hamilton Standard Div
Haydon Co A W
Hays Corporation
Healy Ruff Co
Henschel Corp
Hersey-Sparling Meter Co
Hodge Controls Div
Hoover Electric Co
Howe Scale Co
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Hydel Inc
Industrial Control Co
Industrial Electronic
Industrial Engrg Corp
Industrial Instrument
Industrial Nucleonics
Infilco Inc
Insco Company
Instru-Lec Corp
Intectron Inc
Jordan Controls
Kahn & Co
Kavamil Co
Kearfott Div
Kellogg Switchboard
Kimball Co A
Kinetic Instr Corp
Kollsman Instr Corp
Land-Air Inc
Leeds & Northrup
Leesona Corp
Leonard Inc, Wallace O
Librascope Div
Linear Controls
Link Div
Machinery Electrification
MacLaren & Co F B
MacLeod Inst Corp
Magnetic Instr Co
Manning Maxwell & Moore
Mason Inst Co
McIlvaine O T
Melcor Electronics Corp
Mercoid Corp
Micro Gee Products
Microloc Corp
Micrometrical Mfg
Midwest Automatic Inc
Milgo Electronic
Milro Controls
M-H Apparatus Contls
M-H Boston Div
M-H Brown Instrs Div
M-H Military Prods Grp
Molded Insulation
Monitor Controller Div
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Murphy Mfg Inc
Nacimco Products
Nash Controls Inc
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North Electric Co
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Oil Well Water Locating
Oilgear Co
Ovitron Corp
Pace Controls
Pacific Electro Magnetic
Panellit Inc
Parabam Div
Paraplegics Mfg Co
Partlow Corp
Pearce-Simpson Inc
Pegasus Labs
Philco Corp
Philco Lansdale
Phoenix Precision Instr
Photomation Inc
Pickard & Burns
Pitometer Log Corp
Pneu-Hydro Valve
Pneumafil Corp
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Precision Prods (Tulsa)
Protection Controls
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Pyrometer Instr Co
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Ram Meter Inc
Ramsey Engrg Co
Reeves Instr Crop
Relcon Inc
Reliance Instr Div
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Ronan Panel Co
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Sanders Associates
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Schwarzer Co
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Scrayco Mfg
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Servionic Instruments
Sierra Research Corp
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Specialties Inc
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Stromberg Div
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Taylor Instrument Cos
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Telechrome Mfg Corp
Telex/Lumen
Tel-Instrument Elx
Texas Instruments Inc
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Trott Electronics
Turbo Machine Co
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United Aero Prod
United Aircraft Prods
United Control Systems
United Electric Controls
United Shoe Machinery
Universal Match
Uniwave Inc
Vapor Recovery Systems
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Veeder-Root Inc
Vickers Electric Prods Div
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Waltham Precision Instr
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Warner & Swasey Co
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Weston Hydraulics Ltd
Westronics Inc
Wheelco Indus Instrs
Wiancko Engrg Co
Williamson Development
Worner Electronic Devices

COUNTERS, Alarm

Airpax Electronics
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Automatic Timing & Contls
Beckman/Berkeley Div
Berkeley Dynamics
Brooks Instrument
Bulova Research
Chrono-Log Corp
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Cox Instruments
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Fischer & Porter Co
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Genesys Corp
Land-Air Inc
Lundell & Co
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Philco Corp
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PIC Automation Ctls
Post Electronic
Precision Prods (Tulsa)
Presin Co
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Tech Measurement Corp
Veeder-Root Inc

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Airpax Electronics
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American Tradair
Anadex Instruments Inc
Analogue Controls Inc
Appalachian Electronic
Applied Electronics
Astral Electronics
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Autotron Inc
Baird-Atomic
Baranoff & Assocs
Beckman/Berkeley Div
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Bristol Co
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Computer Equipment
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Control Devices
Control Electronics
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Data Products Co
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Datex Corp
Davenport Mfg
Decker Corp
Delta-F Inc
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Digitran Co
Dorsee Mfg Co
Dresser Elx/SIE Div
DYMEC
Dynapar Corp
Dynatronics Inc
Eberline Instrument
Eldorado Electronics
Electro Instruments
Electro Precision
Electrodynamic Instr
Electronic Computer Co
Electronic Controls Inc
Electronic Counters
Electronic Products
Electronic System Dev
Engineered Electronics
Erie Pacific
Erie Resistor
Exline Engrg
Fischer & Porter Co
Franklin Systems
Freed Transformer
G-V Controls
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General Devices
GE Heavy Mil Elx Dept
GE Specialty Control
General Nuclear Corp
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Genesys Corp
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Gyra Electronics
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Hewlett-Packard
Hughes Aircraft
Houston-Fearless Corp
Iconix Inc
Industrial Nucleonics
Instruments Inc
Kaiser Aircraft & Elx
Kearfott Div
Kellogg Switchboard
Land-Air Inc
Landis & Gyr
Lavoie Labs
Link Div
Litton Systems
Machinery Electrification
Marconi Instruments
Maryland Telecomm
Mast Development
Midwest Automatic Inc
Milgo Electronic
Modernair Corp
Motorola Military Elx
Nacimco Products
National Standard Elx
Navigation Computer Corp
Northeastern Engrg
Nuclear-Chicago
Nuclear Elx Corp
Oxford Engrg Co
Performance Measurements
Philco Corp
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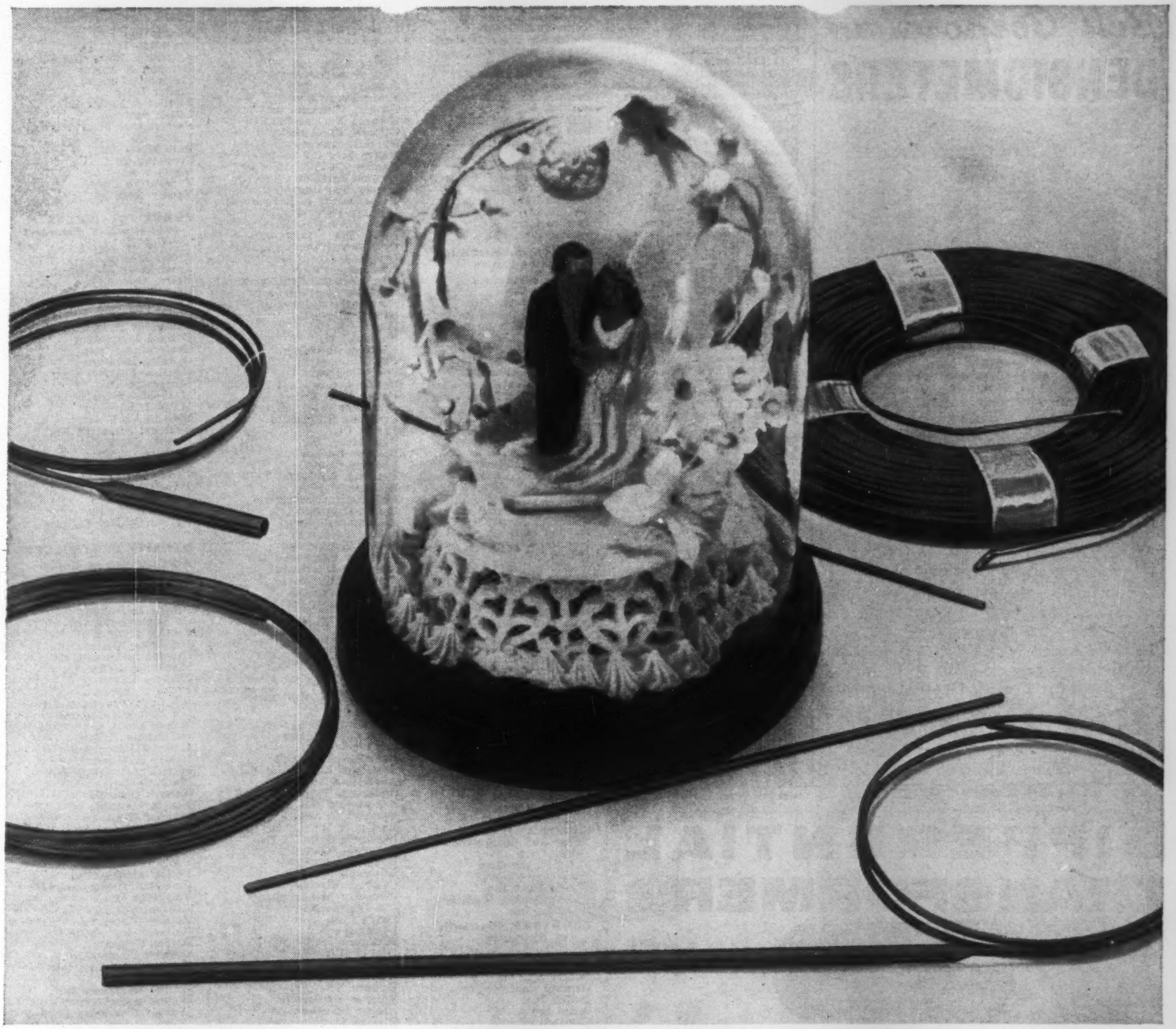
Photobell Co



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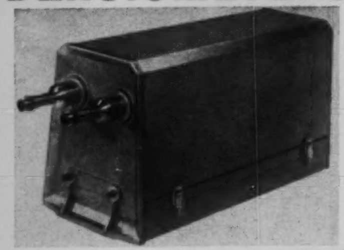

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Tech Measurement Corp
Tele-Dynamics Div
Telechrome Mfg Corp
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Tracerlab Inc
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Electric Tachometer
Electronic Counters
Erie Pacific
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General Controls
GE Ind Control Dept
Gurley W & L E
Industrial Nucleonics
Kerno Instruments Co
Machinery Electrification
Mast Development
Milgo Electronics
National Standard Elx
Olympic Instr Inc
Performance Measurements
Perkins & Son
PIC Automation Ctls
Post Electronic
Potter Aeronautical
Presin Co
Redford Corp
Sanders Associates
Simplex Time Recorder
Standard Instrument
Stevens Mfg George
Tecnica Corp
Veeder-Root Inc

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Barnoff & Assocs
Borg Equipment Div
Bowmar Instrument
Bulova Research
Cox Instruments
Cramer Div
Decker Corp
Digitran Co
Dittmore-Freimuth
Durant Mfg
Electric Tachometer
Empire State Labs
Fischer & Porter Co
General Controls
General Devices
Guardian Electric
Haydon Instr Co
Hughes Aircraft
Infilco Inc
Kearfott Div
Kernco Instruments Co
Kollsman Instr Corp
Landis & Gyr
Mast Development
Monroe Electronics Components Div
North Electric
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Photocon Research
Photomation Inc
Plumb Co D S
Pneumaticount Inc
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Presin Co
Projects Unlimited
Richardson Scale Co
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Rowan Controller Co
Royson Engrg Co
Servomechanism Inc
Spectrol Electronics
Standard Instrument
Streeter Amet Co
Taller and Cooper Inc
Talley Corp
Tejax Engrg Corp
Theta Instrument
Veeder-Root Inc
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WacLine Inc

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Talley Corp
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Automatic Timing & Contls
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Baranoff & Assoc
Beckman/Berkeley Div
Berkeley Dynamics
Beva Laboratory
Bill Jack Scientific
Bowmar Instrument
Bowser Inc
Brooks Instrument
Buffalo Meter Co
C & K Components
Computer Measurements
Control Equipment Corp
Cox Instruments
Cramer Div
Datascan Inc
Di/An Controls
Digitran Co
Dittmore-Freimuth
Doress Mfg Co
Durant Mfg
Dymec Inc
Dynapar Corp
Eagle Signal
Electro Instruments
Electro Precision
Electronic Control
Electronic Counters
Engineered Electronics
Erie Pacific
Erie Resistor
Fairbanks-Morse
Fischer & Porter Co
Foxboro Company
Freed Transformer
General Controls
General Nuclear Corp
Gilmore Industries
Gyra Electronics
Hagen Mfg Co
Haydon Co A W
Haydon Instr Co
Hersey-Sparling Meter Co
Hetherington & Berner
Hewlett-Packard
Howe Scale Co
Iconix Inc
Instruments Inc
Landis & Gyr
Librascope Div
Machinery Electrification
Mast Development
Northeastern Engrg
Oxford Engrg Co
Perkins & Son
Photobell Co
Photocon Research
PIC Automation Ctls
Post Electronic
Potter Aeronautical
Potter Instr Co
Precision Prods (Tulsa)
Precision Specialties
Presin Co
Ram Meter Inc
Ransom Research
Redford Corp
Research Industrial Lab
Richardson Scale Co
Robotomics Enterprises
Rowan Controller Co
Schlumberger Corp
Sciaky Bros Inc
Sentry Equipment
Sparling Equipment Div
Standard Instrument
Stevens Mfg George
Strand Engrg Co
Streeter Amet Co
Techica Corp
Transistor Specialties
Trott Electronics
Veeder-Root Inc
Vemaline Products
Walkirt Co

COUNTERS, Revolution

Abacus Inc
Abrams Instrument
Airpax Electronics
Amerac Inc
American Data Div
American Electronics Inc
Analytic Systems
Automatic Timing & Contls
Automation Dev Corp
Baranoff & Assocs
Barker & Williamson
Beckman/Berkeley Div
Berkeley Dynamics
Bowmar Instrument
Burroughs Corp
Coleman Electronics
Computer Measurements
Cox Instruments
Datex Corp
Digitran Co
Dittmore-Freimuth
Dresser Elx/SIE Div
Durant Mfg
Eagle Signal
Eastern Specialty Co
Electric Tachometer
Electro Mechano Co
Electro Instruments
Electro Products Labs
Electronic Controls Inc
Engler Instrument
Epic Inc
Erie Pacific
Erie Resistor
Fischer & Porter Co
Foxboro Company
Freed Transformer
General Controls
Gurley W & L E
Hasler-Tel
Haydon Instr Co
Hewlett-Packard
Kearfott Div
Kernco Instruments Co
Mast Development
North Electric Co
Photocon Research
PIC Automation Ctls
Pioneer Magnetics
Plumb Co D S
Post Electronic
Potter Aeronautical
Precision Prods
Precision Prods (Tulsa)
Presin Co
Richardson Scale Co
Rowan Controller Co
Servomechanism Inc
Spectrol Electronics
Standard Electric Time
Standard Instrument
Stevens Mfg George
Streeter Amet Co
Technica Corp
Taller & Cooper Inc
Uniwave Inc
Veeder-Root Inc
Walkirt Co

When Using This Guide
look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

COUNTERS, Vehicular

Abacus Inc
American Data Div
American Electronics Inc
Baranoff & Assocs
Electronic Control
Engler Instr
Fischer & Porter Co
Litton Systems
Performance Measurements
Presin Co
Ram Meter Inc
Stoelting Co C H
Streeter Amet Co
Tapeswitch Corp
Veeder-Root Inc

CURVE FOLLOWERS (See also X-Y Recorders —Cat. 3)

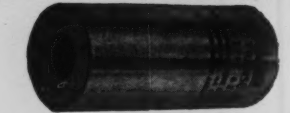
Alden Electronic
Amer Meas & Control
Baird-Atomic
Bristol Co
Calif Computer Prods
Curtiss Wright
Electronic Associates
Exactel Instrument
Geotechnical Corp
Gilmore Industries
Houston-Fearless Corp
Librascope Div
M-H Brown Instrs Div
Milgo Electronics
Moseley Co F L
National Standard Elx
Royson Engrg Co
Sanborn Company
Sonex Inc
Taller and Cooper Inc
Tele-Dynamics Div
Trak Electronics
Trott Electronics
United Control Systems

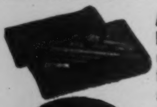
DENSITY CONTROLLERS

Air Conditioning Equip
Automation Products
Autotron Inc
Barton Instrument
Brooks Instrument
Co-Engineering Co
Curtiss Wright
Daystrom/Weston
Exactel Instrument Co
Fischer & Porter Co
Foxboro Company
Franklin Systems
GE Apparatus Sales Div
GE Specialty Control
Hagan Chem & Controls
Hallikainen Instrs
Industrial Nucleonics
Kieley & Mueller
M-H Brown Instrs Div
Macbeth Corp
Newark Controls
Nuclear-Chicago
Nuclear Elx Corp
Nuclear Materials & Eqpt
Ohmart Corp
Photobell Co
Poole Instruments
Potter Aeronautical
Precision Thermometer
Princeton Div
Radionics Inc
Ramsey Engrg Co
Reliance Instr Mfg
Rotron Controls
Spectra Electronics
Taylor Instrument Cos
Tracerlab Inc
United Engineers Inc
Waters Associates
Worner Electronic Devices

DISPLACEMENT INDICATORS, and/or RECORDERS, Angular and Non-linear and Motion

Amer Meas & Control
Auto Control Labs
Automatic Timing & Contls
Bendix Montrose Div
Bently Scientific
Borg-Warner Controls
Brush Instruments Div
Cleveland Instr
Crescent Engrg & Res
Data Tech
Daytronic Corp
Decker Corp
Diamond Power Specialty
Dickson Co
Digitran Co
Edcliff Instruments
Electro Products Labs
Engis Equipment
Fielden Electronics
GRS Corp
General Radio
General Time Central Res
Geotechnical Corp
Gilmore Industries
Gurley W & L E
Impact Register Co
Industrial Test Equip
Instrol Inc
International Res & Dev
Kearfott Div
Keuffel & Esser
Korfund Co
Liquidometer
Litton Systems
Luther Mfg Co
MB Electronics
M-H Boston Div
M-H Brown Instrs Div
M-H Military Prods Grp
MacLeod Inst Corp
Massa Div
Micro Gee Products
Micrometrical Mfg
Milton Roy Co
Muirhead Instrs
Norwood Controls
Performance Measurements





DIFFERENTIAL TRANSFORMERS

A Complete Line of
DISPLACEMENT TRANSDUCERS
(INDUSTRIAL & MIL-SPEC TYPES)

INCREASE SENSITIVITY • SIMPLIFY DESIGN

ATCOTRAN differential transformers translate displacement or position change into linear voltages, providing reliability and infinite resolution where small motions must be accurately measured, recorded or controlled.

ATC's Experimental Kit offers all essential data and components for experimentation and development.

REQUEST
ATCOTRAN CATALOG
A-100

AUTOMATIC TIMING & CONTROLS, INC.
KING OF PRUSSIA, PENNA.
A Subsidiary of American Manufacturing Company, Inc.

CIRCLE 25 ON READER-SERVICE CARD

Photocon Research
Physical Sciences Corp
Potter Aeronautical
Rotiform Co
Sanborn Company
Servomechanism Inc
Specialties Inc
Sprengnether Instr
Sterling Precision
Stocker & Yale Inc
Streeter Amet Co
Swartwout Div
Telectro Industries
Thermo Electric Co
Theta Instrument
United Aero Prod
Vinson Engrg & Sales
Vinson Systems
Westronics Inc

DISPLACEMENT INDICATORS and/or RECORDERS, Linear Motion

Aeronaut & Instr Div
Alina Corp
Amer Meas & Control
Arcweld Mfg Co
Auto Control Labs
Automatic Timing & Contls
Bently Scientific
Black Sivalls & Bryson
Borg-Warner Controls
Brush Instruments Div
Century Elx & Insts
Cleveland Instr
Computer Instruments
Convair Instruments
Crescent Engrg & Res
Data Tech
Datronic Corp
Decker Corp
Edcliff Instruments
Electro Products Labs
Engis Equipment
Exact Weight Scale
Ferranti Electric
Fielden Electronics
Foxboro Company
General Radio
Geotechnical Corp
Gilmore Industries
Gurley W & L E
Hersey Sparling Meter Co
Howell Instrs
Impact Register Co
Industrial Test Equip
Instrol Inc
International Res & Dev
Korfund Co
Leach Corporation
Luther Mfg Co
MB Electronics
M-H Boston Div
M-H Brown Instrs Div
MacLeod Inst Corp
Magnetic Instr Co
Micro Gee Products
Micrometrical Mfg
Performance Measurements
Photobell Co
Photocon Research
Physical Sciences Corp
Poole Instrs Inc
Potter Aeronautical
Rotiform Co
Sanborn Company
Schaevitz Engineering
Servomechanism Inc
Servonic Instruments
Sprengnether Instr
Stocker & Yale Inc
Swartwout Div
Tapeswitch Corp
Taylor Instrument Cos
Thermo Electric Co
Theta Instrument
Tipptronic Inc
Unholtz-Dickie
United Aero Prod
Vinson Engrg & Sales
Vinson Systems
Westronics Inc
Yarnall-Waring

DISPLACEMENT PICK-UPS, Capacitance Type

Bently Scientific
Berkeley Dynamics
Columbia Research Labs
Decker Corp
Electronic Controls Inc
Fielden Electronics
Indikon Inc
Korfund Co
Micrometrical Mfg
Milton Roy Co
Photobell
Photocon Research
Physical Sciences Corp
Radiaphone Co
Security Controls Inc
Vinson Systems
Warrick Co Chas F
Weighing & Controls

DISPLACEMENT PICK-UPS, Differential Transformer Type

Arcweld Mfg Co
Astromics Div
Auto Control Labs
Automatic Timing & Contls
Avien Inc
Baldwin-Lima-Hamilton
Bendix Montrose Div
Bourns Inc
Brush Instruments Div
Cleveland Instr
Collins Corp G L
Crescent Engrg & Res
Daytronic Corp
Edcliff Instruments
Electro-Voice Inc
Engis Equipment
Exactel Instrument Co
Fielden Electronics
Gulton Industries
Instrol Inc
International Resistance
Kearfott Div
Korfund Co
M-H Apparatus Contls Div
Magnetic Instr Co
Micrometrical Mfg
Norwood Controls
Physical Sciences Corp
Ram Meter Inc
Sanborn Company
Schaevitz Engineering
Servonic Instruments
Sheffield Corp
Swartwout Div
Taylor Instruments Cos
Techni-Rite Electronics
United Aero Prod
Vinson Engrg & Sales
Vinson Systems

DISPLACEMENT PICK-UPS, Magnetic, including Variable Reluctance

Aeronaut & Instr Div
Automatic Timing & Contls
BJ Electronics
Bently Scientific
Borg-Warner Controls
Bourns Inc
Collins Corp G L
Consol Electrodynamics
Crescent Engrg & Res
Daystrom/Wiancko
Dresser Elx/SIE Div
Dynapar Corp
Edcliff Instruments
Edison Industries T A
Electro Products Labs
Engis Equipment
Geotechnical Corp
Gulton Industries
Indikon Inc
Instrol Inc
International Res & Dev
Kearfott Div
Korfund Co
Land-Air Inc
MB Electronics
M-H Boston Div
Physical Sciences Corp
Potter Aeronautical
Servonic Instruments
Sterling Precision
Sunshine Scientific
Vinson Engrg & Sales
Vinson Systems
Wiancko Engrg Co

DISPLACEMENT PICK-UPS, Resistive

Avien Inc
Bourns Inc
Chemiquip
Colvin Labs
Computer Instruments
Dynisco Division
Edison Industries T A
Electric Regulator
Engis Equipment
Gems Company
Humphrey Inc
Korfund Co
Micro Systems
Minco Products
Research Inc
Rotiform Co
Servonic Instruments
Statham Instruments
Tapeswitch Corp

DRAFT INSTRUMENTS (See also Boiler Room Instruments, also Pressure)

Bacharach Indus Instr
Bailey Meter Co
Barton Instrument
Bristol Co
Custom Comp Switches
Defender Instrument
Dwyer Mfg Co
Electro-Mech
Ellison Draft Gage Co
GPE Controls
General Controls
Hagan Chem & Controls
Hays Corporation
Leeds & Northrup
Meriam Instr Co
Moore Products Co
Relcon Inc
Reliance Instr Div
Republic Flow Meters
Sirco Products Inc
Trimount Instrument Div
Uehling Instrument
Victory Engrg Corp
Wallace & Tiernan
Wheelco Indus Instrs

DRYERS, Air or Gas

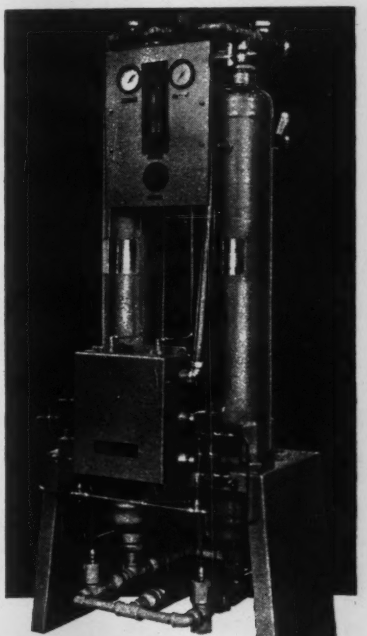
Air-Shields Inc
Advance Industries
Anderson Co V D
Applied Dynamics
Bellows-Valvair
Bendix Pioneer-Central
Cardair Div
Controlled Atmosp Encl
Desomatic Products
Despatch Oven Co
Dryomatic Corp
Electro Chemical Co
Fisher Co Oscar
Gas Drying Inc
General Welding & Fab
Hankison Corp
Hayes Inc, C I
Henry Valve Co
High Vacuum Equip
Jeffrey Mfg
Kahn & Co
Kemp Mfg C M
Kidde Aero Space Div
Lear Inc

design and pre-purchase data

on available measurement and control devices and systems—
yours for the looking—in the

PRODUCT ADS

in your I&CS buyers' guide

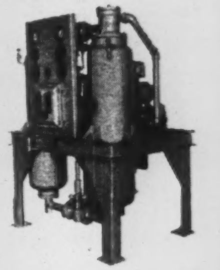


Reliable Dry Air for Control of INSTRUMENTATION **with** TRINITY ***Heat-Les*** **DRYERS**

Here is the most economical—both initially and maintenance-wise—source of dry air for instrumentation. The Trinity Heat-Les dryer has no heaters—operates on a principle so simple, so efficient that operating costs are cut to a minimum while performance exceeds that of any other dryer design. Proved in hundreds of installations.

ALSO HEAT-REACTIVATED DRYERS

Trinity also offers a complete range of capacities in heat-reactivated type dryers of an advanced design, offering the greatest economies and performance for this type dryer... **WRITE FOR COMPLETE TRINITY DRYER AND ACCESSORY TECHNICAL MANUALS...**



TRINITY World leader in dry gas/air systems

TRINITY EQUIPMENT CORPORATION, CORTLAND, NEW YORK

CIRCLE 26 ON READER-SERVICE CARD

COMPRESSED AIR DRYERS

Stop Freezing of Air Lines Inside and Outside Entire Plant — Extract Moisture and Foreign Particles — Protect Pneumatic Equipment against Corrosion and operate for

LESS THAN 1-CENT PER 18,000 CU. FT.

PATS. PEND.

Van-Air® DRYER

VAN-AIR DRYERS require NO regeneration, heat, power, injection or volume loss — operate automatically — deliver air dry, clean, sterile, non-toxic. Built in sizes to treat any volume of compressor output — large or small — NO LIMIT.

PLANT ENGINEERS — Look into the DOLLAR economy and PENNY cost of VAN-conditioned compressed air. Ask for 16-page brochure with charts.

VAN PRODUCTS CO. ★ Engineers ★ Manufacturers

5807 SWANVILLE ROAD, ERIE, PENNSYLVANIA

CIRCLE 27 ON READER-SERVICE CARD

Lower the cost of high-pressure drying

. . . with the Kemp High-Pressure Desiccant Dryer. It's made to dry air and gases under pressures from 1000 to 6000 psig . . . to dew points of -160° F. It's proved itself at launching stations, in research and industrial plants. Design simplicity assures trouble-free operation, longer life. No adjustments are needed from 0 to 100% capacity. Efficient electric heaters perform uniform and complete reactivation. Contamination is eliminated without purging. Get the full details from your Kemp Representative, or write for Bulletins D-108, D-109.

it always pays to come to **KEMP OF BALTIMORE**

The C. M. KEMP MANUFACTURING COMPANY
Glen Burnie, Maryland

CIRCLE 28 ON READER-SERVICE CARD

Modern Lab Equip
National Appliance Co
Pittsburgh Lectrodryer
Pritchard Co J F
Robbins Aviation
Sel-Rex Corp
Selas Corp of America
Telectro Industries
Temperature Engrg Corp
Trinity Equipment
Uehling Instrument
Universal Dynamics
U S Dynamics Inc
Van Products
Wells Inds
Wilkerson Corp
Zeks Industries Inc

DUST-FREE WORK ENCLOSURES & ACCESSORIES, including Rooms, Sterile Cabinets, Pre-entry Showers, Tread Mats, etc.

Alpitec Inc
Auto Control Labs
Baker Co Inc
Bearing Inspection Inc
Blickman Inc
Clean Tread Mat Div
Controlled Atmosp Encl
Kewaunee Mfg
Philco/Lansdale
Radex Corp
Shielding Inc
Suttle Equipment Corp

ENGINE GOVERNORS, including Internal Combustion Engines, Steam Turbines, etc.

American Bosch Arma
ASEA Electric Inc
Bailey Co Chas M
Black Sivalls & Bryson
Cash Co A W
Consol Controls
Eastern Industries
Electric Regulator
G E Apparatus Sales Div
Hamilton Standard Div
Kahn & Co
Kieley & Mueller
King-Seeley Div
Leslie Co
Synchro-Start
Stewart-Warner Corp
Stratos Div
Taylor Instrument Cos
Varo Mfg Co
Westinghouse Air Brake

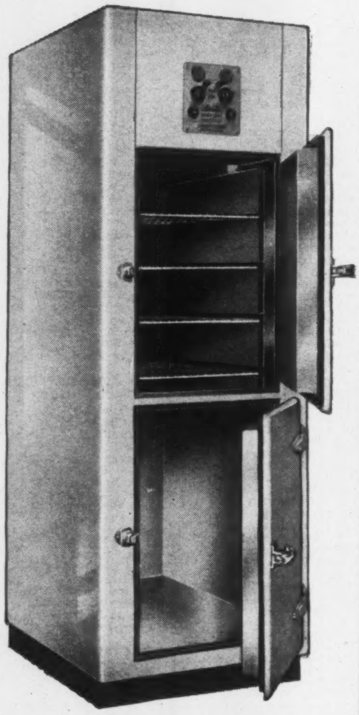
ENVIRONMENTAL TEST CHAMBERS and EQUIP MENT, including Humidity, Pressure, Saltspray, Sand, Temperature, Ultraviolet

Ac-Lab Equipment
Aerotronic Assoc
Aerotest Labs
Airesearch Mfg Co
Airflow Co
Air-Shields Inc
American Research Corp
Anetsberger Brothers
Arcweld Mfg Co
Associated Testing Labs
Atlas Electric Devices
Auto-Control Labs
Autoclave Engineers
Automatic Switch Co
Avco Corp
Bemco Inc
Blickman Inc
Blue M Electric
Bush Associates G F
Cincinnati Sub Zero
CompuDyne Corp
Conrad Inc
Consolidated Vacuum
Control Indicating
Controlled Atmosp Encl
Cooke Inc F J
Cook Electric Co
Custom Scientific Instrs
Delta Design Inc
Delta-F Inc
Despatch Oven Co
Development Engrg Co
Electric Hotpack
Enviro Equipment Corp
Eugene Engrg Co
Fischer & Porter Co
Food Technology
Forma Scientific
G S Equipment
General Vacuum Corp
Grain Lab Equip
Greiner Co Emil
Gyrex Corp
Harco Labs
Harris Refrigeration
Haskris Co
Hieatt Engineering
High Vacuum Equip
Huppert Co K H
Ideal Aerosmith
Industrial Filter & Pump
Instrumentation Assoc
International Radiant
Itemco Inc
Jan Hardware Mfg
Kollsman Instr Corp
LabLine Inc
M-H Military Prods Grp
Mast Development
Missimers Inc
Modern Lab Equipment
Murphy & Miller
NRC Equipment
Nanmac Corp
National Appliance Co

Anets

Laboratory Cabinet

simulates all weather conditions for testing at precision controlled ranges of temperature and humidity . . .



Fully automatic electrical operation guards quality and cuts losses by determining actual results through precision controlled testing. Capacity over 17 cubic feet. Has temperature range from room to 180° F., and up to 95% relative humidity. Fully insulated. Inner construction and essential internal parts are of stainless steel. Outer cabinet finished in tough synthetic baked-on enamel. It is unequalled.

Also custom built electronic cabinets to order.

Write for Bulletin No. 117

Anets FOOD SERVING EQUIPMENT

Anetsberger Brothers, Inc.

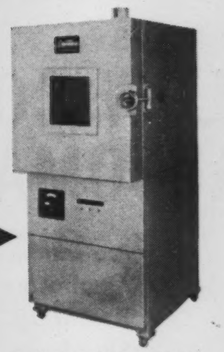
187 N. Anets Dr. **Northbrook, Ill.**
CRestwood 2-0770 **BR 3-2245**

CIRCLE 29 ON READER-SERVICE CARD

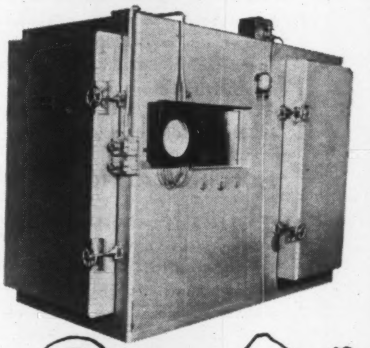
Environmental TEST CHAMBERS

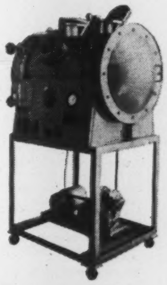
Standard test chambers are expertly designed for accurate, reliable testing. Superior design and quality construction assure years of dependable service with a minimum of maintenance. Whatever the simulated condition desired, there is a Standard Cabinet designed specifically to do the job, guaranteed to give excellent performance.

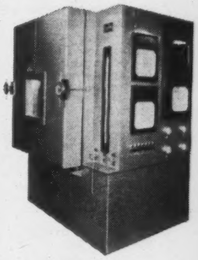
Standard Cabinet Company, a recognized pioneer in the field, has an uninterrupted history of over 18 years under the same ownership and management. It has acquired a wealth of experience and skill in the design and construction of chambers of every description.



ECONO-MODEL







HIGH & LOW TEMPERATURE
ALTITUDE
SAND AND DUST
RAIN AND SUNSHINE
HUMIDITY • FUNGUS
SALT SPRAY
VIBRATION • EXPLOSION
WALK-IN
SPECIAL APPLICATIONS

Write today for free Bulletin No. 60

Standard CABINET COMPANY INC.

MEMBER ENVIRONMENTAL EQUIPMENT INSTITUTE

50 WASHINGTON STREET, CARLSTADT, N. J.

CIRCLE 30 ON READER-SERVICE CARD

Ortho Filter Co
Ozone Res & Eqpt Corp
P S I Laboratory
Philco/Lansdale
Research Inc
Rockwell Co, W S
Rototest Labs
Rucker Co
Sel-Rex Corp
Sheffield Corp
Shielding Inc
Sierra Engineering
Singleton Co
Soiltest Inc
Standard Cabinet Co
Statham Instruments
Strong Electric Corp
Suttle Equipment Corp
Sylvania Lighting Prods
Telectro Industries
Temperature Engrg Corp
Tenney Engineering
Turbo Machine Co
United Aero Prod
United Aircraft Prods
United Electric Controls
Universal Dynamics Corp
Vacuum-Electronics
Waltham Precision Instr
Webber Engrg Corp
Will Corporation
Wyle Laboratories
Wyle Mfg Corp
Zeks Industries Inc

FEEDERS, Automatic Proportioning, including Granular Material

Aidlin Automation Inc
Airmatic Valve Inc
American Meter Co
Automation Devices Inc
B-I-F Industries
CompuDyne Corp
Dynametrics Corp
Eriez Mfg Co
Exact Weight Scale
Exactel Instrument Co
Fischer & Porter Co
Fuller Co
Gilmore Industries
Glass Instruments Inc
Gump Co B F
Hills-McCanna
Houdaille Industries
Howe Scale Co
Industrial Processes
Infilco Inc
Jeffrey Mfg
Lapp Insulator
Madden Corp
Milton Roy Co
Natl Instrument Co
Ramsey Engrg Co
Richardson Scale Co
Sentry Equipment
Syntron Co
Thayer Scale Co
United Control Systems
Wallace & Tiernan
Weighing & Controls

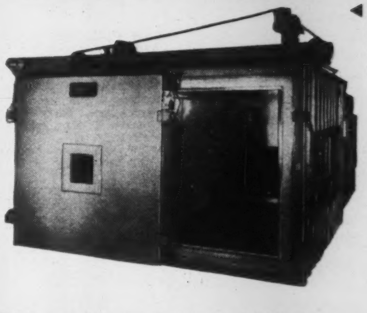
FIRE DETECTORS (see also Combustion Safeguards)

Accuracy Scientific
Barber-Colman
Diamond Power Specialty
Edison Industries T A
Edwards Co
Falcon Alarm Co
General Controls
Grinnell Co
Hamilton Standard Div
Harmon Electronics
Hughes Aircraft
Kidde & Co
Land-Air Inc
Leesona Corp
Mason Inst Co
M-H Military Prods Grp
Phoenix Precision Instr
Redford Corp
Scaico Controls
Servo Corporation
Telectro Industries
United Electric Controls
Victory Engineering
Wells Inds
Wheelco Indus Instrs
Wintronics
Worner Electronic Devices
Wurlitzer Co

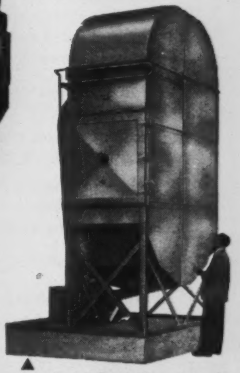
FLOW CONTROLLERS, including Flow Switches

Acme Industrial Co
Aernaut & Instr Div
Aerotec Industries
Airborne Research & Dev
Airesearch Mfg Co
Airmatic Valve Inc
Amer Meas & Control
American Meter
Automatic Control Co
Automatic Switch Co
Automatic Timing & Contls
Automation Dev Corp
B-I-F Industries
Bailey Meter Co
Barton Instrument
Beckman/Berkeley Div
Bendix Utica Div
Black Sivalls & Bryson
Bobrick Aero Missile
Bowser Inc
Brabender Instr C W
Bristol Co
Brooks Instrument
Buffalo Meter Co
Cash Co A W
Cash Valve Mfg
Chemiquip
Computers Inc
Consol Controls
Controls Co of Amer
Cox Instruments
Curtiss Wright
Cutler-Hammer
Dahl Co G W
Daystrom/Weston
Defender Instrument
Denison Engrg Div
Devar Systems
Drying Systems Co
Eastern Industries
Eclipse Fuel Engrg
Electro-Mech
Erie Pacific
Fielden Electronics
Fischer & Porter Co
Fisher Governor Co
Flow Actuated Control
Flow Measurements
Foxboro Company
GPE Controls
Galland-Henning Mfg
Gems Company
General Controls
General Dynamics/Elx
General Regulator
Gump Co B F
Hagan Chem & Controls
Hallikainen Instrs
Hastings-Raydist Inc
Hays Mfg Co
Hays Corporation
Herion Inc
Hersey Sparling Meter
Howe Scale Co
Industrial Instrument
Infilco Inc
Instruments Inc
Johnson Service Co
Jordan Controls
Kates Co W A
Kieley & Mueller
Land-Air Inc
Lear Inc
Leeds & Northrup
Leonard Inc, Wallace O
Leslie Co
M-H Brown Instrs Div
Madden Corp
Magnetrol Inc
Manning Maxwell & Moore
Mason Meilan
McDonnell & Miller
Mercoid Corp
Moore Products Co
National Instrument Labs

AR★ THE MOST ADVANCED ENVIRONMENTAL TECHNIQUES ARE IN AR EQUIPMENT NOW



◀ Altitude, Temperature, Humidity Walk-in chambers completely automatic, factory pre-tested. Sizes from 8 cu. ft.



▲ Sand and Dust chambers include automatic dust density control and streamlined air-flow design.

Designers and manufacturers of Altitude, Temperature, Humidity, Sand & Dust, Rain & Sunshine, Explosion, Special Liquid Chilling and other types of Environmental Test Equipment.

All size Chambers Available.
Write for Catalog.

MEMBER OF THE ENVIRONMENTAL EQUIPMENT INSTITUTE

AMERICAN RESEARCH CORP.
FARMINGTON 8 CONNECTICUT

CIRCLE 31 ON READER-SERVICE CARD

LOW COST AUTOMATIC

✓ Protection
✓ Monitoring
✓ Actuating
✓ Shutdown

FLO GUARDIAN

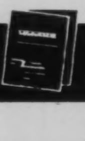
POWERTRON ULTRASONICS
FLO GUARDIAN

This positive actuating flow switch by Powertron monitors a flow or no flow condition or increment change in flow rate. The FLO-GUARDIAN has a wide variety of applications in circulating cooling systems and prevents equipment damage from dangerously low flow rate.

☐ Housing of stainless steel, brass or plastic
☐ Accommodates pipe diams. of 1/4", 1/2", 3/4", 1"
☐ Operating temps. 75°F to 220°F with higher temperatures available
☐ AC or DC operation

Achieving highest quality at lowest cost...

For more information on standard models available, write for Bulletin 1011-1061



POWERTRON ULTRASONICS CORP.
Expressway Industrial Park
Plainview, Long Island, New York
Huntsville, Ala. • Los Angeles, Calif.

CIRCLE 32 ON READER-SERVICE CARD

New Jersey Meter Co
North American Mfg
Norwood Controls
Pegasus Labs
Penn Meter Co
Permutit Co
Pnew-Hydro Valve
Potter Aeronautical
Racine Hydra & Machy
Redford Corp
Reliance Instr Mfg
Republic Flow Meters
Revere Corp of Amer
Rockwell Co, W S
Rockwell Mfg Co
Scrayco Mfg
Security Valve Co
Servomechanism Inc
Simplex Valve & Meter
Sirco Products Inc
Sparling Equipment Div
Stratos Div
Swartwout Div
Tapeswitch Corp
Taylor Instrument Cos
Texas Instruments Inc
True-Flo Valve
United Aircraft Prods
United Control Systems
U S Gauge Div
Vickers Inc
Waugh Engineering Co
Weatherhead Co
Westinghouse Air Brake
Weston Hydraulics

FLOW INSTRUMENTS, Granular Materials

Amer Meas & Control
Automation Products
B-I-F Industries
Bailey Meter Co
Barton Instrument
Bin-Dicator Co
Bristol Co
Curtiss Wright
Custom Comp Switches
Dahl Co G W
Dynametrics Corp
Ellison Draft Gage Co
Fischer & Porter Co
Flo-Tronics Inc
Flow Measurements
Fluidynamics
Industrial Processes
Princeton Div
Scrayco Mfg..
Security Controls Inc
Tapeswitch Corp
Wallace & Tiernan
Westronics Inc

FLOW NOZZLES

American Lava Corp
B-I-F Industries
Bailey Meter Co
Bristol Co
Cox Instruments
Exactel Instrument Co
Fluidynamics
Foxboro Company
General Controls
Hagan Chem & Controls
Haveg Industries
Jedco Inc
Lear Inc
Missimers Inc
Parker Aircraft Co
Penn Meter Co
Permutit Co
Republic Flow Meters
Simplex Valve & Meter
Taylor Instrument Cos

FLOW PICKUPS, Turbine Type (see also Orfice Plates, Venturi Tubes, Pitot Tubes, Flow Nozzles)

Advanced Dynamics
Aero Research Instr
Automatic Timing & Contls
B-I-F Industries
Barton Instrument
C-Mar Instrument
Co-Engineering Co
CompuDyne Corp
Cox Instruments
Dwyer Mfg Co
Dynamic Instr
Exactel Instrument Co
Fischer & Porter Co
Gilmore Industries
Hays Corp
Natl Instrument Labs
Penn Meter Co
Potter Aeronautical
Propulsion Dev Labs
Ramapo Instrument
Revere Corp of Amer
Richter Cine Equip
Rosemount Engrg Co
Rotron Controls
Standard Controls Inc
United Sensor & Control
Vinson Systems
Waugh Engineering Co

FLOW PROVERS

American Meter
Auto Control Labs
Brooks Instrument
Cox Instruments
Industrial Instrument
Porter Inc Geo K
Rockwell Mfg Co
Sircon Products Inc
Waugh Engrg Co

FLOW REGULATORS, Self-Operated

Aero Supply Mfg
Aerotec Industries
Airborne Research & Dev
Airesearch Mfg Co
Airmatic Valve Inc
Applied Dynamics
Associated Valve Co
B-I-F Industries
Bailey Co Chas M
Bailey Meter Co
Barton Instrument
Bendix Utica Div
Black Sivalls & Bryson
Bobrick Aero Missile
Bristol Co
Brooks Instruments
Bush Associates G F
Carter Company J C
Cash Co A W
Cash Valve Mfg
Circle Seal Products
Computers Inc
Dahl Co G W
Defender Instrument
Denison Engrg Div
Dole Valve Co
Fischer & Porter Co
Fischer Governor Co
Flow Measurements
Fluid Controls
Fulton Sylphon Div
Futurecraft Corp
Galland-Henning Mfg
General Controls
General Dynamics/Elx
Grove Valve & Regulator
Hagan Chem & Controls
Hannifiin Co
Hays Mfg Co
Herion Inc
Kates Co W A
Kidde Aero Space Div
Kieley & Mueller
Leonard Inc, Wallace O
Manning Maxwell & Moore
Moore Products Co
North American Mfg
OPW-Jordan
Parker Aircraft Co
Pneu-Hydro Valve
James Pond & Clark Inc
Potter Aeronautical
Propulsion Dev Labs
Redford Corp
Reliance Instr Mfg
Republic Mfg Co
Rockwell Mfg Co
Scott Aviation Corp
Servomchanism Inc
Stratos Div
Trerice Co H O
United Aircraft Prods
United Control Systems
U S Gauge Div

FLOW TRANSMITTERS

INDICATING

MINI-LINE Transmitters directly indicate rate of flow or differential pressure measurements and transmit standard SAMA pneumatic signals or a-c and/or d-c electric signals. Max service pressures to 6000 psig and max ranges up to 0-1200" H_2O. Request Specs G22-8, P22-8, E22-8, E22-9 for rate of flow measurements and Specs G21-4, P21-4, E21-4, E21-3 for differential pressure measurements.

NON-INDICATING

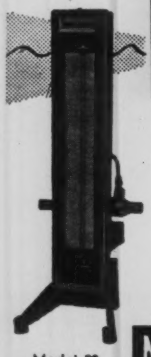
f/b-LINE Transmitters transmit linear rate of flow or differential pressure measurements. Consists of diaphragm measuring mechanism and force balance unit which may contain square root extracting mechanism. Max service pressures to 1500 psig and max ranges up to 0-2000" H_2O. Pneumatic output of 3-15 or 3-27 psig. Request Specs P22-1 and P21-1 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 33 ON READER-SERVICE CARD

When Using This Guide look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

Vol-O-Flo Linear Gas Flowmeter
For Laboratory Plant Special Equipment



Model 20

ACCURATE • RUGGED • ADAPTABLE

Meters using laminar flow elements have the highest potential accuracy possible. Accuracy is independent of pipe run. Convenient to use. Available for table, pipe, wall, or flush mounting. Specials to order: Pressure to 2000 psig, temperature to 500° F, overflow checks, H-assemblies. Dial indicator type (Model 30) and element only (Model 10, for customer secondary device) are also available.

NATIONAL INSTRUMENT LABORATORIES

828 Evarts St., N.E.
Washington, D. C.
NOrth 7-7582

CIRCLE 34 ON READER-SERVICE CARD

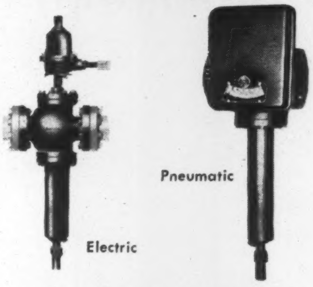
FLOW TOTALIZERS

Air Conditioning Equip
American Meter Co
Auto Control Labs
Automation Dev Corp
B-I-F Industries
Bailey Meter Co
Barton Instrument
Beckman Berkeley Div
Bristol Co
Brooks Instrument
Bowser Inc
Buffalo Meter Co
Computers Inc
Cox Instruments
Data-Master Corp
Decker Corp
Dynapar Corp
Erie Pacific
Exactel Instrument Co
Fischer & Porter Co
Flow Measurements
Foxboro Company
GPE Controls
Hagan Chem & Controls
Hallikainen Instrs
Hamilton Standard Div
Hersey Sparling Meter Co
Industrial Measurements
Infilco Inc
Leupold & Stevens Instr
Librascope Div
M-H Brown Instrs Div
Natl Instrument Labs
Penn Meter Co
Potter Aeronautical
Ramapo Instrument
Republic Flow Meters
Revere Corp of Amer
Rotron Controls
Royson Engrg Co
Sentry Equipment
Simplex Valve & Meter
Sirco Products Inc
Sparling Equipment Div
Swartwout Div
Wallace & Tiernan
Waugh Engineering Co
Vickers Inc
Victor Equipment
Vinson Engrg & Sales
Vinson Systems
Wallace & Tiernan
Warren Automatic Control
Weatherhead Co
Westinghouse Air Brake
Weston Hydraulics Ltd

FLOW TRANSMITTERS

Aeronaut & Instr Div
Air Conditioning Equip
American Meter Co
Auto Control Labs
Automatic Control Co
Automatic Timing Contls
Anderson Greenwood & Co
Avien Inc
B-I-F Industries
BJ Electronics
Bailey Meter Co
Barton Instrument
Balck Sivalls & Bryson
Boonshaft and Fuchs
Bourns Inc
Bristol Co
Brooks Instrument
Computers Inc
Conoflow
Consol Controls
Cox Instruments
Datex Corp
Daystrom Mil Elx
Detroit Controls
Devar Systems
Dwyer Mfg F W
Exactel Instrument
Fielden Electronics
Fischer & Porter Co
Flow Measurements
Foxboro Company
GPE Controls
General Regulator
Hagan Chem & Controls
Hallikainen Instrs
Hastings-Raydist
Hays Corporation
Hersey Sparling Meter Co
Industrial Instrument
Industrial Measurements
Infilco Inc
M-H Brown Instrs Div
M-H Fall River Div
Manning Maxwell & Moore
Mason Neilan
Moore Products Co
Motorola Military Elx
National Instrument Labs
Norwood Controls
Pace Engrg Co
Pegasus Labs
Penn Meter Co
Permutit Co
Potter Aeronautical
Rahm Instruments Div
Ramapo Instrument
Republic Flow Meters
Revere Corp of Amer
Rosemount Engrg Co
Rotron Controls
Schutte and Koerting
Servonic Instruments
Simplex Valve & Meter
Sirco Products Inc
Swartwout Div
Taylor Instrument Cos
Trans-Sonics
Ultradyne Inc
United Aero Prod
United Electric Controls
U S Gauge Div
Wallace & Tiernan
Waugh Engrg Co
Westinghouse Air Brake
Yarnall-Waring

AREA METER TRANSMITTERS



Transmit rate of flow measurements of water, kerosene, gasoline, oil, tar, chemicals, distillates, and refrigerants to indicating, recording, integrating, and/or controlling equipment. Transmitted signal is directly proportional to rate of flow. Min range: 0-560 lb per hr; max range: 0-102,000 lb per hr. Max service pressures to 600 psig per ASA standards. Transmitters are installed in pipe line like a valve. A-C and/or D-C outputs for electric transmitters; 3-15 psig or 3-27 psig for pneumatic transmitters. Request Specs E22-4 and P22-4 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 35 ON READER-SERVICE CARD

FLOWMETERS, Area, including Cone and Disc Type, Cylinder and Piston Type, Free Float Type

Acme Industrial Co
Air Conditioning Equip
American Gas Furnace Co
Amer Meas & Control
Auto-Control Labs
Bailey Meter Co
Bayley Instrument
Bowser Inc
Bristol Co
Brooks Instrument
Bubble-O-Meter
Buffalo Meter Co
C-Mar Instrument
Control Engineering
Cox Instruments
Defender Instrument
Designers for Industry
DeZurik Corp
Dietz Co Henry G
Dwyer Mfg Co
Eclipse Fuel Engrg
Fischer & Porter Co
Greiner Glassblowing
Hallikainen Instrs
Hastings-Raydist Inc
Hays Corporation
Hersey Sparling Meter Co
Hoke Inc
Industrial Measurements
M-H Brown Instrs Div
Manostat Corp
National Instrument Labs
New Jersey Meter Co
Penn Meter Co
Permutit Co
Phoenix Precision Instr
Physical Sciences Corp
Porter Inc Geo K
Ramapo Instrument
Reliance Instr Div
Republic Flow Meters
Rockwell Mfg Co
Roger Gilmont Instrs
Scanivalve Sales Co
Schutte and Koerting
Selas Corp of America
Sentry Equipment
Simplex Valve & Meter
Sparling Equipment Div
Uehling Instrument
Victor Equipment
Wallace & Tiernan
Waukee Engineering

FLOWMETERS, Area, Orifice and Plug Type

Acme Industrial Co
Air Conditioning Equip
Amer Meas & Control
American Meter
Auto Control Labs
Automatic Timing & Contls
B I F Industries
Bailey Meter Co
Barton Instrument
Bristol Co
Brooks Instrument
C-Mar Instrument
Chemiquip
Computers Inc
Cox Instruments
Designers for Industry
Dwyer Mfg Co
Eclipse Fuel Engrg
Ellison Draft Gage Co
Fischer & Porter Co
Fluidynamics
Gelman Instrument Co
Greiner Glassblowing
Hagan Chem & Controls
Hallikainen Instrs
Hays Corporation
Industrial Instrument
Infilco Inc
King Engrg
M-H Brown Instrs Div
Madden Corp
Martin & Co H S
Mason Neilan
Meriam Instr Co
National Instrument Labs
Penn Meter Co
Physical Sciences Corp
Porter Inc Geo K
Propulsion Dev Labs
Ramapo Instr Co
Republic Flow Meters
Reliance Instr Div
Robinson Orifice
Rockwell Mfg Co
Schueler & Co
Schutte & Koerting
Simmonds Precision Prods
Simplex Valve & Meter
Sparling Equipment Div
Taylor Instrument Cos
Uehling Instrument
Wallace & Tiernan

FLOWMETERS, Electromagnetic, including Turbine

Air Conditioning Equip
Bendix Pioneer-Central
Bowser Inc
Bristol Co
C-Mar Instrument
CompuDyne Corp
Computers Inc
Cox Instruments
Crescent Engrg & Res
Designers for Industry
Electromation Co
Exactel Instrument Co
Fischer & Porter Co
Flow Measurements
Foxboro Company
Gilmore Industries
Hays Corporation
Motorola Military Elx
Natel Engrg Co
Physical Sciences Corp
Potter Aeronautical
Revere Corp of Amer
Rockwell Mfg Co
Taylor Instrument Cos
Vidar Corp
Vinson Mfg Co
Vinson Systems
Waugh Engineering Co

FLOWMETERS, Inferential Type, including Orifice, Nozzle, Pitot, Venturi; for Air, Gas, Liquid or Steam; Indicating and/or Recording

Advanced Dynamics
Aero Research Instr
Air Conditioning Equip
Amer Meas & Control
American Meter
Auto Control Labs
B-I-F Industries
Bailey Meter Co
Barton Instrument
Boonshaft and Fuchs
Bristol Co
Brooks Instrument
C-Mar Instrument
Commercial Iron Works
Cox Instruments
Defender Instrument
Designers for Industry
Eclipse Fuel Engrg
Ellison Draft Gage Co
Fischer & Porter Co
Fluidynamics
Foster Engineering Div
Foxboro Company
Hagan Chem & Controls
Hammel-Dahl/Foster Engrg
Hastings-Raydist
Hays Corporation
Industrial Instrument
Infilco Inc
King Engrg
M-H Brown Instrs Div
Mason Neilan
Meriam Instr Co
National Appliance Co
National Instrument Labs
Norwood Controls
Penn Meter Co
Physical Sciences Corp
Pioneer Magnetics
Porter Inc Geo K
Propulsion Dev Labs
Ramapo Instrument
Republic Flow Meters
Robinson Orifice
Rockwell Mfg Co
Rosemount Engrg Co
Schueler & Co
Sentry Equipment
Simmonds Precision Prods
Simplex Valve & Meter
Swartwout Div
Taylor Instrument Cos
Trimount Instrument Div
United Aircraft Prods
Victor Equipment

FLOWMETERS, Magnetic

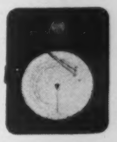
Bell Inc F W
Bowser Inc
C-Mar Instrument
Cox Instruments
Electromation Co
Fischer & Porter Co
Foxboro Company
Hays Corporation
Hersey Sparling Meter Co
M-H Brown Instrs Div
MSA Research Corp
OPW-Jordan
Performance Measurements
Physical Sciences Corp
Rockwell Mfg Co
Schutte & Koerting
Simmonds Precision Prods
Taylor Instrument Cos

FLOWMETERS, Open Channel, including Flume, V-notch, Weir (see also Waste)

B-I-F Industries
Bailey Meter Co
Bristol Co
Brooks Instrument
Cox Instruments
DeZurik Corp
Fischer & Porter Co
Foxboro Company
Hagan Chem & Controls
Hersey Sparling Meter Co
Infilco Inc
Leupold & Stevens Instr
M-H Brown Instrs Div
Penn Meter Co
Physical Sciences Corp
Republic Flow Meters
Rockwell Mfg Co
Simplex Valve & Meter
United Aircraft Prods

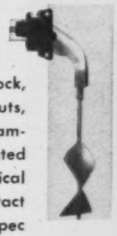
FLOW METERS

FLUIDS



Records and integrates rate of flow of steam, water and other liquids, air, and gases. If desired, rate of steam flow may be recorded simultaneously with rate of combustion air flow thus indicating when optimum air is being supplied for combustion. Max service pressures to 6000 psig and max ranges up to 0-212" H_2O. Request Specs M22-1 and M22-2 for details.

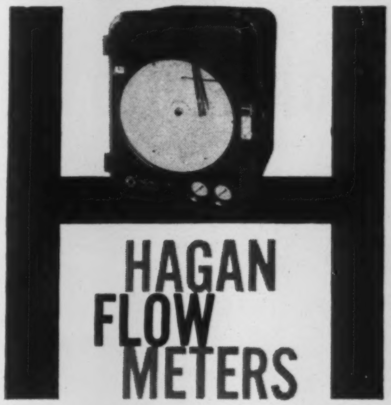
GRANULAR MATERIALS



Provide a volumetric measurement of flow of granular material (such as coal, ore, crushed rock, etc.) in vertical ducts, spouts, or pipes up to 40" in diameter. Total flow is indicated by either a direct mechanical counter or an electric contact remote counter. Request Spec M22-6 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 36 ON READER-SERVICE CARD



HAGAN FLOW METERS

For recording, indicating, integrating or control of flows, Hagan Ring Balance meters offer these unique features:

1. High sensitivity at low flows.
2. Easy calibration under operating static pressures.
3. Sealing fluid density and level not critical.
4. Interchangeable ring assemblies for full scale ranges from 0.5" w.c. to 560" w.c. Adjustment on any one ring over a 7:1 differential range.
5. Built-in wide range computation and/or compensation.

HAGAN CHEMICALS & CONTROLS, INC.
DIVISIONS: CALGON COMPANY, HALL LABORATORIES

HAGAN BUILDING, PITTSBURGH 30, PA.
In Canada: Hagan Corporation (Canada) Limited, Toronto
European Division: Via Flumendosa No. 13, Milano, Italy

CIRCLE 37 ON READER-SERVICE CARD

FOR QUALITY...
PRODUCTIVITY
...PROFIT

INSTRUMENTATION
FOR AUTOMATION

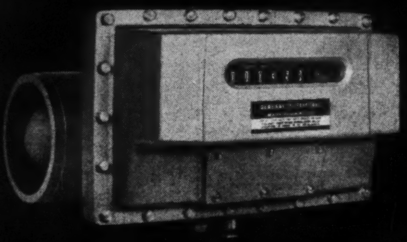
PROBLEM: how to collect, record and transmit critical fluid flow data more *accurately* than ever before.

SOLUTION: custom-designed flow measurement systems from General Electric.

RESULT: reliable process control, simplified fluid accounting, precision batch blending and loading.

System instrumentation includes: true mass flowmeter, available in 13 standard ranges ■ null balance recorders, a full line of strip and round-chart ■ new telemetering equipment, analog and digital.

In addition, ticket printers and totalizing counters are available for visual digital display and pre-set counters may be added to provide precision control in blending and loading operations.

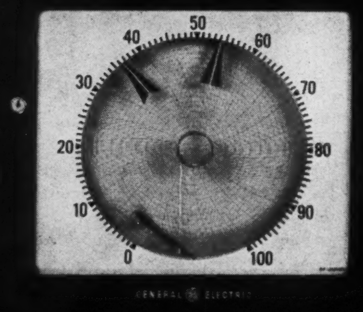


Mass Flowmeter measures fluid flow directly in pounds, eliminates volume-to-mass conversion. ±1% accuracy unaffected by change in pressure, density, temperature, viscosity, flow rate. 13 standard ranges now available.

FOR FLUID FLOW PROCESS: HIGH ACCURACY

In a variety of system applications, these General Electric instruments cut operating costs and boost plant production . . . through *simplified* and *more accurate* measurement. No wonder they've been specified by process engineers throughout the world. *Performance-proved . . . on the line!*

For complete information, contact your nearby General Electric sales office or write Section 599-08, General Electric Co., Schenectady 5, N. Y. for the following bulletins: GEA-6925, Mass Flowmeter; GEA-6887, Null Balance Recorders; GEA-7163, Telemetering Systems. In Canada, contact Canadian G.E. Co. Ltd., 940 Lansdowne Ave., Toronto 4, Ontario. Outside the U.S. and Canada, contact International G.E. Co., 150 E. 42nd St., New York 14, N. Y.

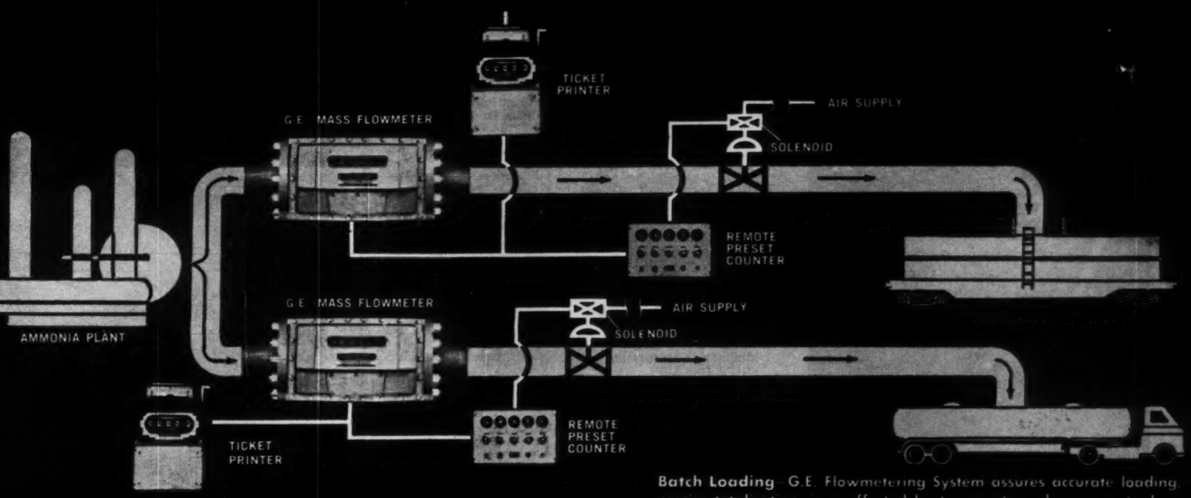


General Electric Null Balance Recorders feature: silicon diode reference voltage source for operational reliability; varied control forms for versatile applications; components mounted on swing-out panel to simplify routine maintenance. Full line includes multipoint, single and two-pen—strip or round-chart models.

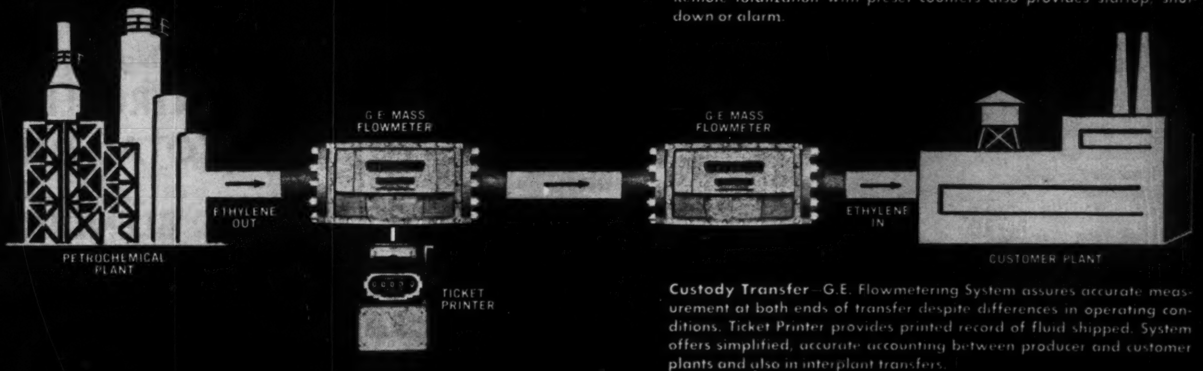
INSTRUMENT DEPARTMENT

GENERAL ELECTRIC

CIRCLE 38 ON READER-SERVICE CARD

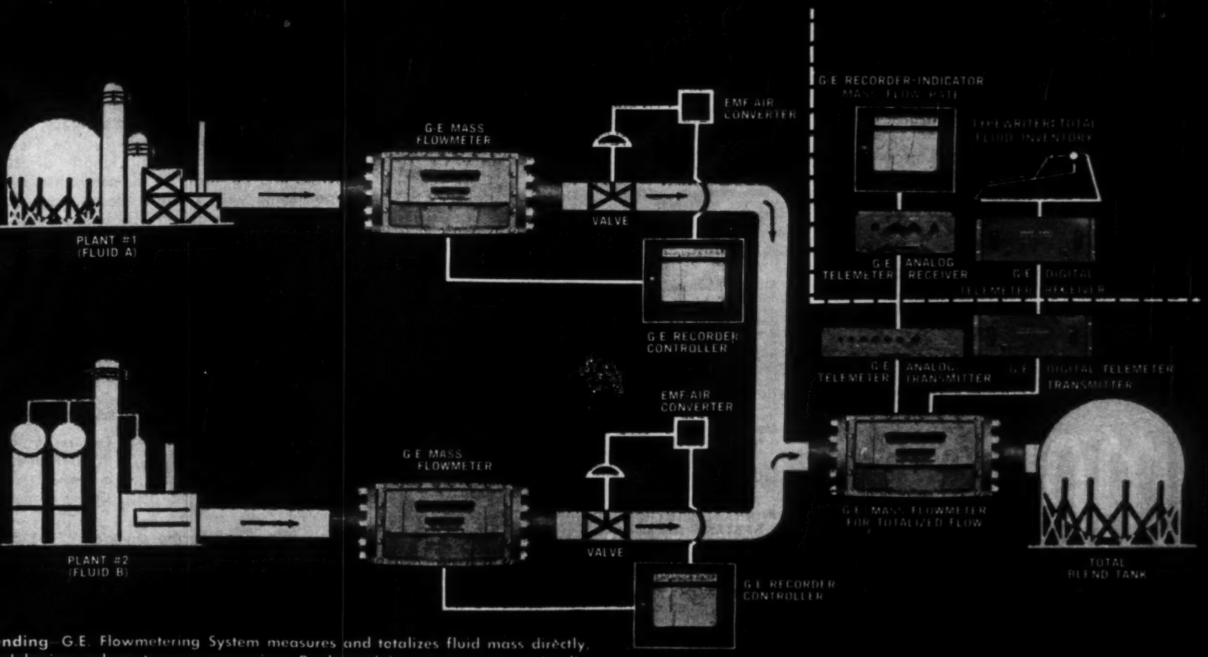

TICKET PRINTER
G.E. MASS FLOWMETER
AIR SUPPLY
SOLENOID
REMOTE PRESET COUNTER
AMMONIA PLANT
G.E. MASS FLOWMETER
AIR SUPPLY
SOLENOID
TICKET PRINTER
REMOTE PRESET COUNTER

Batch Loading—G.E. Flowmetering System assures accurate loading, precise totalization; is unaffected by temperature changes in tank or pipe. Meter measures different fluids with no calibration change. Remote totalization with preset counters also provides startup, shutdown or alarm.

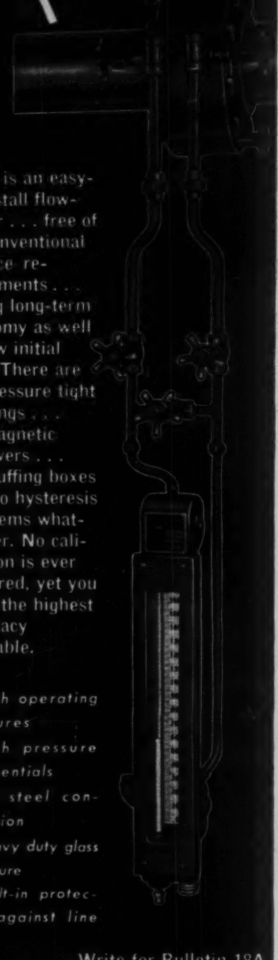

G.E. MASS FLOWMETER
G.E. MASS FLOWMETER
PETROCHEMICAL PLANT
ETHYLENE OUT
ETHYLENE IN
CUSTOMER PLANT
TICKET PRINTER

Custody Transfer—G.E. Flowmetering System assures accurate measurement at both ends of transfer despite differences in operating conditions. Ticket Printer provides printed record of fluid shipped. System offers simplified, accurate accounting between producer and customer plants and also in interplant transfers.

MEASUREMENT SYSTEMS FROM GENERAL ELECTRIC


PLANT #1 (FLUID A)
G-E MASS FLOWMETER
VALVE
EMF-AIR CONVERTER
G-E RECORDER CONTROLLER
PLANT #2 (FLUID B)
G-E MASS FLOWMETER
VALVE
EMF-AIR CONVERTER
G-E RECORDER CONTROLLER
G-E RECORDER-INDICATOR MASS FLOW RATE
TYPEWRITER: TOTAL FLUID INVENTORY
G-E TELEMETER ANALOG RECEIVER
G-E DIGITAL TELEMETER RECEIVER
G-E TELEMETER ANALOG TRANSMITTER
G-E DIGITAL TELEMETER TRANSMITTER
G-E MASS FLOWMETER FOR TOTALIZED FLOW
TOTAL BLEND TANK

Fluid Blending—G.E. Flowmetering System measures and totalizes fluid mass directly, eliminates laborious volume-to-mass conversions. Predetermining counters assure simplicity and accuracy in blending operations. Data is instantly telemetered to central locations by new G-E Telemetering. Typical blends are refrigerants, solvents and special naphthas.



UNMATCHED ACCURACY

in direct flow indication

Wherever you seek simplicity and high accuracy in flow measurement at lowest cost, the Meriam "H" Meter is the well-known answer.

Here is an easy-to-install flowmeter . . . free of all conventional service requirements . . . giving long-term economy as well as low initial cost. There are no pressure tight bearings . . . no magnetic followers . . . no stuffing boxes . . . no hysteresis problems whatsoever. No calibration is ever required, yet you have the highest accuracy available.

★ High operating pressures
★ High pressure differentials
★ All steel construction
★ Heavy duty glass enclosure
★ Built-in protection against line surges

Write for Bulletin 18A

Meriam Manometer Instrumentation
...for pressures, vacuums, flows, liquid levels.

meriam
INSTRUMENT COMPANY
10920 Madison Ave. • Cleveland 2, Ohio

CIRCLE 39 ON READER-SERVICE CARD

FLOWMETERS, Positive Displacement, including Consumer Gas, Nutating Pistons or Disc, Oscillating Platen, Propeller, Reciprocating Piston and Rotary Piston, Water Meters, etc.

Acme Industrial Co
American Meter
Auto-Control Labs
B-I-F Industries
Badger Meter Mfg
Bowser Inc
Buffalo Meter Co
Convair Instruments
Cox Instruments
Decker Corp
Designers for Industry
Fischer & Porter Co
Gurley W & L E
Hagan Chem & Controls
Hays Corporation
Hersey Sparling Meter Co
Hetherington & Berner
Industrial Measurements
Lapp Insulator
Madden Corp
Neptune Meter Co
OPW-Jordan
Physical Sciences Corp
Porter Inc Geo K
Potter Aeronautical
Revere Corp of Amer
Rockwell Mfg Co
Roots-Connersville
Sentry Equipment
Smith Corp O
Sparling Equipment Div
Victor Equipment

FLOWMETERS, Sight

Alina Corp
Arnolt Corp
Bowser Inc
Brooks Instrument
C-Mar Instrument
Cox Instruments
Dahl Co G W
Dietz Co Henry G
Eclipse Fuel Engrg
Fischer & Porter Co
Fisher Scientific
Flo-Tronics Inc
GRS Corp
Greiner Co Emil
Greiner Glassblowing
Infilco Inc
McIntosh Equipment
National Instrument Labs
New Jersey Meter Co
OPW-Jordan
Pacific Scientific
Petrometer Corp
Schutte and Koerting
Scientific Glass
Selas Corp of America
Uehling Instrument
Victor Equipment

FLOWMETERS, True Mass

Alina Corp
Avien Inc
Bendix Pioneer-Central
Black Sivalls & Bryson
Co-Engineering Co
Cox Instruments
Crescent Engrg & Res
Decker Corp
Dynisco Division
Exactel Instrument Co
Fischer & Porter Co
GE Apparatus Sales Div
Gilmore Industries
Hagan Chem & Controls
Hastings-Raydist Inc
Poole Instruments
Potter Aeronautical
Propulsion Dev Labs
Ramapo Instrument
Raytheon/Govt Mktg Div
Revere Corp of Amer
Rotron Controls
Simmonds Precision Prods
Tracerlab-Keleket
Trans-Sonics
Wallace & Tiernan
Waugh Engineering Co

FLOWMETERS, Vane Type

Air Conditioning Equip
Alina Corp
Arnolt Corp
Bailey Meter Co
Bendix Pioneer-Central
Bowser Inc
Bristol Co
Eclipse Fuel Engrg
Fischer & Porter Co
Illinois Testing Labs
New Jersey Meter Co
Ramapo Instrument
Rockwell Mfg Co
Sentry Equipment
Simmonds Precision Prods
Smith Corp O
Standard Controls Inc

FURNACE CONTROL SYSTEMS (see Boiler Room Instruments, also Combustion Safeguards)

Aeronaut & Instr Div
Alina Corp
Astra Technical Instr
Automatic Timing & Contls
Bailey Co Chas M
Bailey Meter Co
Bristol Co
Cash Co A W
Controls Co of Amer
Cutler-Hammer

Daystrom/Weston
Defender Instrument
Diamond Power Specialty
Dwyer Mfg F W
Eclipse Fuel Engrg
Ellison Draft Gage
Energy Kontrols
Farris Engrg Corp
Fielden Electronics
Foxboro Company
GE Apparatus Sales Div
GPE Controls
General Controls
General Dynamics/Elx
General Regulator
Hagan Chem & Controls
Hays Corp
Industrial Instrs Inc
Industrial Nucleonics
Ipsen Industries
Kielly & Mueller
Leeds & Northrup
Maryland Telecomm
McIlvaine O T
Moore Products Co
North American Mfg
Panellit Inc
Permutit Co
Pimex Inc
Reliance Instr Div
Republic Flow Meters
Selas Corp of America
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Swartwout Div
Syracuse Electronics
Thermco Instrument
Thermo Electric Co
WE-Director Systems
Westronics Inc
Wheelco Indus Instrs

GAS ANALYZERS, Air

Analytic Systems
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Bacharach Indus Instr
Beckman/Sci & Proc Div
Beckman & Whitley
Brothers Chemical Co
Carad Corp
Consolidated Vacuum
Cramer Controls Corp
Crump Instrument
Davis Instruments
Ellison Draft Gage Co
Engelhard Industries
Fischer & Porter Co
Fisher Scientific Co
Fuller Co
Gelman Instrument
Gow-Mac Instrument
Greenbrier Instrs
Greiner Glassblowing
Hagan Chem & Controls
Industrial Instruments
Instrumentation Assoc
Interelectronics
Land-Air Inc
Leeds and Northrup
Loe Engrg Co
Mine Safety Appliances
National Instrument Labs
National Spectrographic
Nuclide Analysis Assoc
Permutit Co
Phoenix Precision Instr
Precision Scientific Co
Protection Controls
Relcon Inc
Thermco Instrument
Vacuum-Electronics
Victory Engrg Corp
Waters Associates
Wheelco Indus Instrs

GAS ANALYZERS, Ammonia

Analytic Systems
Automation Products
Baird-Atomic
Beckman/Sci & Proc Div
Brothers Chemical Co
Cambridge Instrument
Crump Instrument
Davis Instruments
Engelhard Industries
Epic Inc
Fischer & Porter Co
Fisher Scientific
Foxboro Company
Gow-Mac Instrument
Greenbrier Instrs
Greiner Glassblowing
Hallikainen Insts
Industrial Instruments
Instrument Corp of Amer
Johnson-Williams
Loe Engrg Co
Mine Safety Appliances
Permutit Co
Precision Scientific Co
Ranarex Div
Thermo Instrument
Universal Match

GAS ANALYZERS, Carbon Dioxide, and or Carbon Monoxide

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American Data Div
American Electronics Inc
Analytic Systems
Automation Products
Bacharach Indus Instr
Bailey Meter Co
Baird-Atomic
Beckman/Sci & Proc Div
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Waugh

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TOTALIZING
and
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Waugh Turbine Flow Meters provide outstanding accuracy and reliability in fluid processes where blending in precise ratios, batch control, or flow rate control is required. Turbine flow meters have a **linear** output which simplifies totalizing, and maintains full accuracy in pulsating flow conditions. Accuracy is ½% of the flow rate over flow ranges as high as 20:1, and even better over narrow ranges.

Control devices designed for use with Waugh Turbine Flow Meters include solid state counters, totalizers, controllers, and complete digital blending systems to blend simultaneously as many as 20 different components.

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FOR COMPLETE INFORMATION REQUEST
WAUGH BULLETIN 114

Waugh
Engineering Representatives in Principal Cities

Engineering Division
THE FOXBORO COMPANY
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CIRCLE 40 ON READER-SERVICE CARD

INSTRUMENT
DAVIS
DIVISION

GAS ANALYSIS INSTRUMENTS

Continuous and Portable units

✓ **PARAMAGNETIC OXYGEN MEASUREMENT**

Detects oxygen content of gases. Simple non-electronic circuit. Fast response—95% reading in 15 seconds. Ranges from 0-5% O_2 to 0-100% O_2. EXPLOSION-PROOF CONSTRUCTION AVAILABLE.

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Measurement of P.P.M. gas concentration. Used in air pollution studies, contaminant control, detection of toxic gases and vapors. Compact units for field surveys as well as universal mounting cabinets and self-standing cubicles.

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Complete diversified line of systems for detection of combustible gases and vapors in work areas; litho and coating oven atmosphere control; etc. Control of combustibles in inert gas streams.

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Measurement of concentration to one gas component in a mixture of gases, utilizing sensitive filaments as the detector. Applicable for determination of: H_2 in O_2. N_2 mixtures; Argon in air; hydrogen purity; CO_2 in flue gas, etc.

✓ **TRACE HYDROCARBON DETECTION**

A system utilizing a flame ionization principle, that detects and measures parts per million concentrations of such organic compounds as hydrocarbons, aldehydes, ketones, alcohols and amines.

Write for Descriptive Literature

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A Division of Davis Emergency Equipment Co., Inc.
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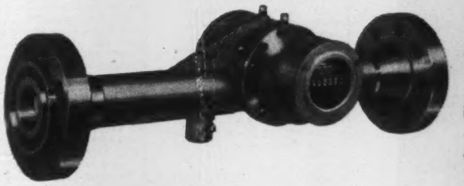
CIRCLE 41 ON READER-SERVICE CARD

ROTRON WHIRL-FLO *FLOWMETERS*



A wide range of dependable flowmeters designed on the Vortex-Velocity principle to provide an economical means of accurately measuring liquid or gas flow for the chemical, oil and gas industries.

MAIN FEATURES

- High Accuracy
- Direct totalization
- Versatility of readout...direct readout of flow rate at meter or transmission to remote locations ...automatic batch control available plus ticket printing and recording
- High capacity
- Economy...low installation cost...inherently larger capacity compared with other flowmeters size for size
- Simple construction facilitates field service
- Compact, simple design permits easy installation
- Rugged construction assures reliable, long life service
- Wide range of applications for liquids or gases...handles viscous fluids...even liquids with suspended solids

GENERAL SPECIFICATIONS

Pressure Rating: 2-inch meters 1500 psig or 5000 psig; 3-inch meters and larger 2000 psig.
Pressure Drop: for liquids less than 7 psig at max. flow; for gases usually less than 100 inches water at max. flow rate.
Sizes: models available from 2-inch to 16-inch for liquids or gases.
Accuracy: depends upon meter size; usually ±0.5% or better over 10:1 span. Repeatability better than ±.2%.
Standard Materials of Construction: 2-inch meter stainless steel; other sizes carbon steel; other materials available.
Capacity: liquid capacities range from 10 to 100 gpm for the 2-inch meter to 1400-21,000 gpm for the 16-inch meter; typical gas capacities range from 100-1000 scfm at 100 psi in a 2-inch meter up to 20-150 mmscfd in a 16-inch meter at 100 psi.

ROTRON ®

write for full details

ROTRON CONTROLS
division of
ROTRON MFG. CO., INC.
66 Bearsville Road, Woodstock, N. Y.

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Instr Development Co
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Interelectronics
Kruger Instrs Harold
L K B Instruments
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Leeds & Northrup
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Mine Safety Appliances
Nuclide Analysis Assoc
Permutit Co
Precision Scientific Co
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Taller and Cooper Inc
Thermco Instrument Corp
Uehling Instrument
Universal Match
Victory Engineering
Wheelco Indus Instrs

GAS ANALYZERS, Hydrogen, Hydrogen Sulphide, Nitric Oxide, etc.

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G E Specialty Control
Gelman Instrument
Gow-Mac Instrument
Greenbrier Instrs

PARKINSON COWAN
INDUSTRIAL PRODUCTS

GAS TEST METERS

with 150 years of experience in the measurement of gases

Parkinson Cowan gas test meters are world renowned as products of master craftsmen. Every Parkinson Cowan instrument represents the 150-year tradition of high accuracy and fine workmanship.

These Parkinson Cowan volume test meters are of the wet-type, which contain a drum with a horizontal axis that rotates more than half immersed in water, thus providing a greater control of accuracy. Each instrument is easily dismantled for cleaning and servicing. You can rely on a PC gas test meter to provide years of true test measurement.

TYPE A	TYPE B	TYPE E-40
Compact Test Meter With Large Capacity	Portable Test Meter For All Laboratory Work	Heavy Duty Type For Oil & Chemical Use
Capacity: 20 cu. ft./hr.	**Capacity:** 10 cu. ft./hr.	**Capacity:** 40 cu. ft./hr.
Accuracy: ±0.1%	**Accuracy:** ±0.25%	**Accuracy:** ±0.25%
Case: Tinned brass	**Case:** Plated Copper	**Case:** Stainless Steel
Dim.: 11" h, 11" w, 12½" d	**Dim.:** 11" h, 11" w, 12½" d	**Dim.:** 13" h, 15" w, 15" d
Wt.: 23 lbs.	**Wt.:** 10 lbs.	**Wt.:** 18 lbs.
Connections: Elbow for push-on tubes; internal thread—⅜"	**Connections:** Push-on rubber tubes; internal thread—⅛"	**Connections:** Push-on ¾" tubing
Price: $\$275^{00}$	**Price:** $\$185^{00}$	**Price:** $\$250^{00}$

For further details, and Parkinson Cowan catalog, covering both wet and dry type test meters, contact:

INSTRUMENTATION ASSOCIATES
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MSA's
complete line
of instruments
solves variety
of gas analysis
problems

Successful solutions to gas analysis problems? Contact the MSA man. He's an Instrument Specialist. He's backed by over 30 years of MSA research and engineering in this field. He can relate the advantages of our complete product line to your specific process problems. Call him. There's no obligation, ever.

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Kruger Instrs Harold
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Permutit Co
Precision Scientific Co
Ranarex Div
Schlumberger Corp
Schuco Scientific
Thermco Instrument Corp
Universal Match
Waters Associates

GAS ANALYZERS, Nitrogen

Air Conditioning Equip
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Automation Products
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Cambridge Instrument
Coleman Instruments Inc
Crump Instrument
Davis Instruments
Defender Instrument
Ellison Draft Gage Co
Engelhard Industries
Epic Inc
Gow-Mac Instruments
Greenbrier Instrs
Greiner Glassblowing
Industrial Instruments
Instr Development Co
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Loe Engrg Co
Milton Roy Co
Mine Safety Appliances
Nuclide Analysis Assoc
Permutit Co
Precision Scientific Co
Ranarex Div
Thermco Instrument Corp
Universal Match
Waters Corp

GAS ANALYZERS, Orsat

Apex Scientific Co
Bacharach Indus Instr
Burrell Corp
Crump Instrument
Defender Instrument
Ellison Draft Gage Co
Epic Inc
Fisher Scientific Co
Foxboro Company
Greiner Co Emil
Greiner Glassblowing
Hays Corporation
Mine Safety Appliances
Relcon Inc
Scientific Glass
Victory Engineering

GAS ANALYZERS, Oxygen, Ozone

Advanced Instruments
Air Conditioning Equip
Analytic Systems
Automation Products
Bacharach Indus Instr
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Bay-Tronic Co
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Brothers Chemical Co
Burrell Corp
Cambridge Instrument
Consol Electrodynamics
Crump Instrument
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Defender Instruments
Ellison Draft Gage Co
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Epic Inc
Fisher Scientific
Fuller Co
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Gow-Mac Instrument
Greenbrier Instrs
Greiner Co Emil
Greiner Glassblowing
Hastings-Raydist
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Instrumentation Assoc
Interelectronics
Laboratory Equip Corp
Leeds & Northrup
Lockwood & McLorie Inc
Loe Engrg Co
Milton Roy Co
Mine Safety Appliances
Mira Corp
National Instrument Labs
Ozone Res & Equip Corp
Precision Scientific Co
Relcon Inc
Reliance Instr Div
Thermco Instrument Corp
Tracerlab Inc
Universal Match
Waters Associates

GAS ANALYZERS, Water Vapor

Automation Products
Greenbrier Instrs
Greiner Glassblowing
Mine Safety Appliances
Schlumberger Corp
Tracerlab Inc

GAS ANALYZERS, Sulphur Dioxide

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Automation Products
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Cambridge Instrument
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Crump Instrument
Davis Instruments
Engelhard Industries
Epic Inc
Fisher Scientific
Foxboro Company
Gelman Instrument
Greenbrier Instrs
Greiner Glassblowing
Hays Corporation
Industrial Instrs Inc
Instrument Corp of Amer
Instr Development Co
Kruger Instrs Harold
Laboratory Equip Corp
Leeds & Northrup
Loe Engrg Co
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Permutit Co
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Ranarex Div
Schuco Scientific
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Tracerlab-Inc
Universal Match

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Automation Products
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Bailey Meter Co
Barton Instrument
Bristol Co
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Davis Instruments
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Air Conditioning Equip
Atkins Technical Inc
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Minco Products
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National Instrument Labs
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Powers Regulator
Pyrometer Instr Co

BAILEY METER
GAS ANALYZERS

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For volumetric measurement of oxygen and combustibles content of flue gases, furnaces, prepared atmospheres, etc. Operate remote electronic receivers for recording, indicating, and/or controlling. Oxygen and combustibles measurement available in same unit or separately as dictated by process. Approved by Factory Mutual for use on gas-fired installations. Request Specs E65-1 and E65-6 for details.

PORTABLE (INDICATING)

For use as test instrument. HEAT PROVER Combustion Analyzer provides continuous indications of both % oxygen and % combustibles content. Permits determination of precise fuel-air relationship for optimum combustion efficiency. May include thermocouple for temperature measurement. Request Spec E65-5 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

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GAS ANALYZERS
(thermal conductivity)

- "Therma Bridge" Gas Analyzer for monitoring gas stream purity values and general thermal conductivity applications.
- "Therma Bridge" Power Supply & Control Unit for balancing and activating sensing cells.
- "Therma Bridge" Stabilized Temperature Sensing Unit for measuring low impurity percentages in gas analysis and chromotography. Also for thermal conductivity measurements at elevated temperatures.
- "Therma Bridge" Sensing Cells, high sensitivity, low background noise.

Write for complete catalog

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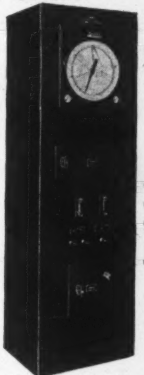
PROCESS GAS ANALYZERS

THERMCO SPECIALIZES IN ANALYZERS FOR THE FOLLOWING GASES:



- Oxygen
  - Oxygen Purity
  - Trace Oxygen Measurements
  - Intermediate Oxygen Measurements
- Argon Purity
- Hydrogen Purity
- Hydrogen in Furnace Atmospheres
- Carbon Dioxide and —
  - Numerous other process control and portable instruments.

We will gladly supply you with complete information on these instruments . . . write:

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LA PORTE, INDIANA

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Bush Associates G F
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Foxboro Company
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Grinnell Co
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Johnson Service Co
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Scientific Instrument
Serdex Inc
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Taylor Instrument
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Universal Dynamics
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U S Gauge Div
Warren Components
Weksler Instruments
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Magnaflux Corp
Met-L-Chek Co
Newark Controls
Poole Instruments
Potter Aeronautical
Schneider Mfg Co
Telectro Industries
United Electric Controls
U S Nuclear
Waters Associates

LEAK DETECTORS, Gas

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Astromics Div
Beckman/Sci & Proc Div
C Mar Instrument
Carad Corp
Cetron Electronic
Consol Electrodynamics
Convair Instruments
Crosby-Teletronics Corp
Davis Instruments
Designs for Tomorrow
Electrospace Corp
Engelhard Industries
Fisher Scientific
GE Apparatus Sales Div
Gelman Instrument Co
Hastings-Raydist
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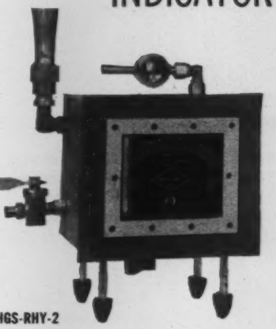
Industrial Instruments
Johnson-Williams Inc
Land-Air Inc
Leesona Corp
Marsh Instrument Co
Milton Roy Co
Mine Safety Appliances
NRC Equipment
Newark Controls
Nuclide Analysis Assoc
Ohio Chem & Surg Equip
Perkin-Elmer Corp
Phoenix Precision Instr
Poole Instruments
Porter Inc Geo K
Schlumberger Corp
Smith Co Inc Arthur
Sunshine Scientific
Taylor Instrument
Trans-Sonics
United Electric Controls
Universal Match
U S Nuclear
Vacuum-Electronics
Vacuum Instrument
Veeco Vacuum
Waters Associates

When Using This Guide look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

remote humidity readings

SIMPLY . . . ACCURATELY With The Unique

REMOTE HUMIDITY INDICATOR



Type HGS-RHY-2
Price—$200.

THE ONLY INSTRUMENT OF ITS KIND FOR EXTERIOR SAMPLING OF CLOSED AREAS

It's so easy to get a reading. Simply connect one outlet to a vacuum line or pump; the other to the area or container to be sampled. And that's it! No conversion charts or wiring needed.

TEMPERATURE EQUALIZATION, TOO

Inside the air chamber of the gauge is a coil through which liquid of a predetermined temperature may be circulated. This may be used to bring the air chamber into equilibrium with the area to be sampled. A thermometer verifies this equalization. Once the equilibrium has been established, the double wall, insulated construction of the unit retards fluctuations from external conditions.

The humidity indicator in this unit is model HGS-HY-1 described below, and carries the same warranty.

THE MOST ACCURATE PORTABLE HYGROMETER ON THE MARKET TODAY

Laboratory Standard
Model HGS-HY-1
Price—$75.

Accuracy of ±1½% is unconditionally warranted for 12 months. Read direct from dial. Weighs just 11 ounces. Reasonably priced. Order today. Money back if not satisfied.

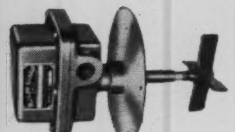
SERDEX INCORPORATED
Relative Humidity Indicators, Recorders, Controllers
12-E Bowdoin Square, Boston 14, Massachusetts
Catalogue on request

CIRCLE 48 ON READER-SERVICE CARD

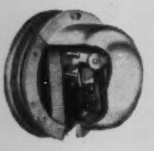
New ROTO-GUARD*
SHAFT MOTION INDICATOR

Provides positive indication of drop in speed or stopping of machinery. Protects conveyors, elevators, feeders, etc. Rugged, compact; connects to rotating shaft, actuates warning lights or other signals, operates control switches. Simple, positive, low cost. Write for Bulletin RG-21.

*TRADE MARK



ROTO-BIN-DICATOR® motor-driven, paddle-type bin level indicator for use on granular or pulverized material. Ideal for bins under vacuum or pressure. Automatically operates signals and controls.



BIN-DICATOR® diaphragm-type bin level indicator. Successful for 20 years. Automatically operates signals and controls.

BIN-FLO® uses small volume, low pressure air to keep bulk materials moving in chutes, bins, hoppers. No moving parts. Simple installation.

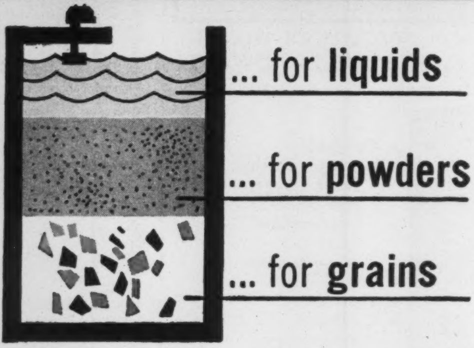
THE BIN-DICATOR CO.
17190-B4 Denver • Detroit 24, Mich.

Write for free copy of catalog BD-15 or call
TUxedo 2-3000

WE SELL DIRECT • PHONE ORDERS COLLECT

CIRCLE 49 ON READER-SERVICE CARD

NOW! LOW-COST LEVEL CONTROL



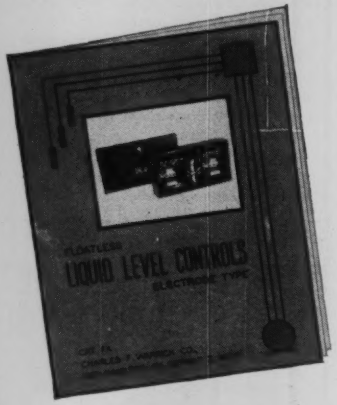
Positive measurement and control of material levels can be obtained with low cost W & C Prob-A-Larms.* Prob-A-Larms, are standardized capacitance type probes available in several local and remote models; All Prob-A-Larms are fail-safe.

WRITE FOR FREE CATALOG.

*Trademark

Weighing & Controls, Inc.
TRANS-WEIGH COMPANY
SUBSIDIARIES OF **CompuDyne Corporation**
HENDERSON ROAD • KING OF PRUSSIA, PENNSYLVANIA

CIRCLE 51 ON READER-SERVICE CARD



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- Duplex Pump Alternators
- High and Low Level Cutoffs
- High and Low Level Alarms
- Multi-level Signals
- Liquid Metering
- Special Controls and Panels

CHARLES F. WARRICK CO.

1951 W. Eleven Mile Rd.
Berkley, Mich.

Warrick

FLOATLESS
LIQUID LEVEL CONTROLS
ELECTRODE TYPE

CIRCLE 50 ON READER-SERVICE CARD

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Worner Electronic Devices

LEVEL CONTROLLERS, INDICATORS and/or RECORDERS, Liquid (see also Valves, Float)
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Aero Research Instr
Aero Supply Mfg
Aeronaut & Instr Div
Aerotec Industries
Allen-Bradley
American Meter Co
Associated Valve Co
Atwood & Morrill Co
Automatic Control Co
Automatic Timing & Contls
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Sierra Electronic Corp

CIRCLE 52 ON READER-SERVICE CARD →

A NEW ADDITION TO THE

SONAC LINE

POSITIVE ULTRASONIC LEVEL CONTROL

SONAC
ULTRASONIC SENSOR
DELAVAN

The components of Sonac (sensor actual Size)

Now, two new ultrasonic sensors, especially for level control have been added to the Delavan line of SONAC sensing and switching devices.

The single sensor system is recommended for liquid level control and the double sensor system for dry level control.

Control is maintained by installing the SONAC sensor through the wall of the vat, bin or hopper. When the oscillation on the face of the sensor is dampened or impeded by the material being sensed, the signal to the control unit changes, activating a relay.

FIG. 1—LIQUID LEVEL (One Sensor)

FIG. 2—DRY LEVEL (Two Sensors)

For level control, SONAC is accurate to .005″ and has a response time of 25 milliseconds. Performance of the sensor does not deteriorate with age.

The level control uses to which SONAC can be applied are virtually unlimited. It is not affected by the viscosity*, specific gravity, conductivity, or capacitance of the material being sensed. Temperature or pressure changes of the material do not alter its performance. False signals are eliminated because SONAC may be adjusted so as not to sense steam, foam, or vapors.

*Viscosity may affect response time.

Canadian Representative:

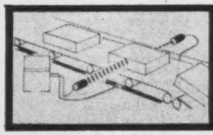
KNOWLES & FOSTER (North America) Ltd.

708 Terminal Bldg., Toronto 1, Ontario, Canada

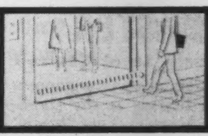
SONAC is extremely rugged. Sensors are type 304 stainless steel. The electronic components in the sensors are hermetically sealed and will withstand pressures to 2000 psi and temperatures from −425° F. to +450° F. They are immune to shock, vibration or mechanical damage.

The control is a compact unit 5″ x 5″ x 5″ and features transistor circuitry. Power consumption is one watt and the unit will operate in temperature ranges from 40° F. to 135° F.

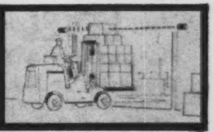
Here's how SONAC can be used for sensing and switching applications other than level control.



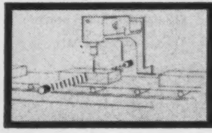
Automatic Counting



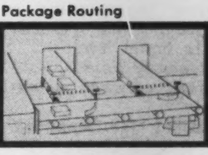
Door Control



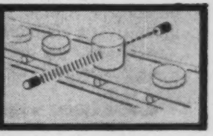
Overheight Signal



Positioning



Package Routing



Size Control

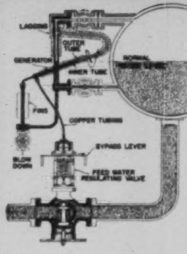
There are dozens of applications for SONAC single and double sensor units. Let it go to work for you now, write:

DELAVAN
Manufacturing Company
WEST DES MOINES • IOWA

A

BAILEY METER

FEED WATER CONTROL



Single-element, Self-operated

The four basic types of Bailey Feed Water Control include:

(1) Three-element, air-operated which operates from Steam Flow, Water Flow, and Water Level measurements. Request Bulletin 530 for details.

(2) Two-element, air-operated which operates from Steam Flow and Water Level measurements. Request Bulletin 531 for details.

(3) Single-element, air-operated which operates from Water Level measurements. Request Bulletin 531 for details.

(4) Single-element, self-operated which operates from Water Level measurements. The Bailey Thermo-Hydraulic Feed Water Regulator includes a generator and feed water regulating valve. Request Spec M85-1 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 53 ON READER-SERVICE CARD

This is

LEVEL MASTER®

The UNFAILING Liquid Level Control!

The ability to function with *continuous, sensitive control* with liquids is the standout feature of Level Master. The "brain" of Level Master is the unique Bell Magnetic Proximity switch incorporating a permanent Alnico V magnet that responds instantly to changes in liquid level!

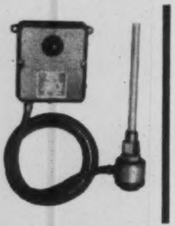
- *Models for all types of liquids.*
- *Horizontal, vertical, external mountings.*
- *Precision engineered for long life operation.*

For full information consult your Level Master representative or write directly to:

Jo-Bell Products, Inc.
5456 W. 111th St. • Oak Lawn, Ill.
Phone GArden 5-0240

CIRCLE 54 ON READER-SERVICE CARD

TO CONTROL YOUR Level BEST!



The New Fielden TEKTOR® offers inexpensive and reliable detection, alarm or control of the level of any material in any container. This highly stable, sensitive, capacitance-probe instrument, through a unique combination of features never before available, solves level control problems formerly believed to be insurmountable. Availability of more than 350 different standard probe types and cable lengths up to 250′ ensures ideal performance in most level applications.

Only Fielden Electronics, Inc. can supply TEKTOR or other Fielden Instruments.

Fielden ELECTRONICS, INC., HUNTINGTON, N. Y.
Representatives in Principal Cities

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Wallace & Tiernan
Warren Automatic Control
Warrick Co Chas F
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Trimount Instrument Div
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Victory Engineering
Weighing & Controls
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Westronics Inc
Wheelco Indus Instrs

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Automatic Control Co
Automatic Timing & Contls
Automation Products
B-I-F Industries
Bailey Meter Co
Barton Instrument
Bendix Pioneer-Central
Black, Sivalls & Bryson
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Exactel Instrument
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Flo-Tronics Inc
Foxboro Company
Franklin Systems
GPE Controls
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General Regulator Corp
Hagan Chem & Controls
Hays Corporation
Healy-Ruff Co
Hersey Sparling Meter Co
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Industrial Nucleonics
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Instrol Inc
Instruments Inc
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Mason Neilan
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Taylor Instrument
Telechrome Mfg Corp
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Uehling Instrument
Ultradyne Inc
United Electric Controls
U S Gauge Div
Vapor Recovery Systems
Vinson Mfg Co
Weighing & Controls
Yarnall Waring

LEVELLING SADDLES for Flowmeters, etc.

American Meter Co
Commercial Iron Works
Daniel Orifice Fitting
Devar Systems
Robinson Orifice
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LOAD CELLS (see also Pressure, also Weight)

Allegany Instrument
Anadex Instruments Inc
ASEA Electric Inc

When Using This Guide look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

MAGNETROL

LIQUID LEVEL CONTROLS
for practically
ANY LIQUID
at any TEMPERATURE
at any PRESSURE

TANK FLOAT SWITCHES
- Top Mounting
- Side Mounting
- External Float Cage.

DIFFERENTIAL PRESSURE SWITCHES
FLOW SWITCHES
REFRIGERATION CONTROLS
OIL LEVEL ALARM RELAYS
BOILER WATER LEVEL CONTROLS
HIGH TEMPERATURE — HIGH PRESSURE UNITS
Write for complete Catalog

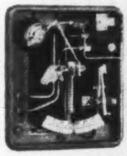
● MAGNETROL, INC.
5326 Belmont Road, Downers Grove, Illinois

CIRCLE 56 ON READER-SERVICE CARD

LEVEL TRANSMITTERS

INDICATING

MINI-LINE Level Transmitters directly indicate measurements of liquid level in pressure vessels and transmit standard SAMA pneumatic signals or a-c and/or d-c electric signals. Max service pressures to 3500 psig and range spans of 12" H_2O to 400" H_2O at 68F. Measuring mechanisms available: float-on-mercury, mercury-sealed bell, and bellows. Request Specs G31-4, P31-4, E31-4, E31-3 for details.

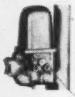


NON-INDICATING

f/b-LINE Level Transmitters pneumatically transmit measurements of liquid level in closed or open tanks with range spans of 4" to 2000" H_2O. Consists of diaphragm measuring mechanism and a force balance pneumatic transmitting unit. Max service pressures to 1500 psig. Request Spec P31-1 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 57 ON READER-SERVICE CARD



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TANK CONTENTS AT-A-GLANCE with Dial-Type Liquidometer Gauges

For added assurance of accurate liquid quantity record keeping, specify easy-to-read Liquidometer gauges. Positive dial-and-pointer type indicators help to prevent erroneous readings . . . speed record keeping by showing tank contents at-a-glance.

Liquidometer gauges are available to measure and indicate virtually any liquid — at the tank site or remotely. Also available: integral or separate liquid level switches for automatic level warning or control. Float, hydrostatic, electric, or electronic operation can be supplied to meet your specific needs.

Let Liquidometer's forty years of experience in liquid level gauging and control work for you. Write for latest literature.

LIQUIDOMETER INSTRUMENTS

THE LIQUIDOMETER CORP.
Dept. E, LONG ISLAND CITY 1, NEW YORK
CIRCLE 58 ON READER-SERVICE CARD

King Instruments

MANOMETERS:
U-TUBE—SINGLE CLEANOUT

Simple, sturdy instruments for measuring vacuum or pressure to 250 psi. Cleanout construction; steel, brass, or stainless steel; 6" thru 50" lengths.

DOUBLE CLEANOUT

U-tube type, but using two straight glass tubes with cleanout head at each end. Tested for 250 psi. Steel, brass, or stainless steel; 6" thru 130" lengths.

WELL TYPE

For all types of mounting. Have demountable well, easy to service. Steel, or stainless steel; 6" thru 130" lengths.

RAISED-WELL TYPE

For measuring both pressure and vacuum, or with 3" scale adjustment for measuring absolute pressure. Scale in inches of mercury or feet of altitude.

PHOTO-MANOMETERS

Backlighted for photographing readings. 2 to 100 tubes, to 170" length.

WRITE for literature on items of interest.

LIQUID LEVEL GAUGES

King-Gages of laboratory precision, graduated in inches, gallons or pounds—for every kind of liquid, in vented or pressurized tanks. Brass or stainless steel; 6" thru 88" lengths.

COMPRESSED AIR FILTERS

New operating principle removes all harmful traces of dirt, water and oil. Filters go months without maintenance. 20 to 200 scfm capacity; 1/4" to 2" NPT.

AIR SIGHT-FEED BUBBLER

Indicates rate of flow by rise of bubbles thru liquid in glass or plastic cylinder. Needle valve gives precise flow adjustment. Tested for 100 psi.

AIR LINE MOISTURE INDICATOR

Used in small-diameter air or gas lines to indicate presence of moisture by change in color of desiccant. Tested for 100 psi.

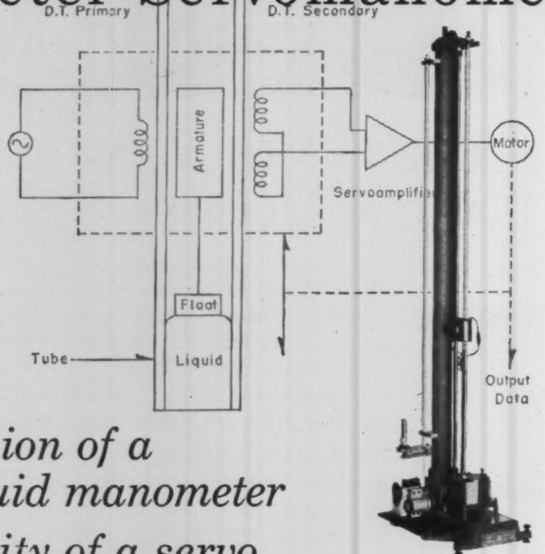
PRESSURE TRANSMITTER

Used with pneumatically-operated instruments where a positive seal is required between instrument system and fluid measured.

KING ENGINEERING CORPORATION
P. O. Box 659 Ann Arbor, Mich.

CIRCLE 59 ON READER-SERVICE CARD

Exactel Servomanometers



precision of a liquid manometer ...utility of a servo

Illustrated is Exactel Servomanometer Model C560IN-D with 60 inch range, Analog Temperature Compensation and digital output with synchro transmitter. Servomanometers are available in single or dual construction with five ranges to 120 inches and 25 optional features. The instruments are operational in nature and have been proven in a wide range of applications to combine exceptional accuracy, simplicity and the reliability required for industrial installation. Exactel's sixteen page Bulletin 500 describing new Servomanometer techniques and many new applications is available on request.

EXACTEL INSTRUMENT COMPANY
89 Alice Avenue/Mountain View, California/YO 8-6558

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Teller Co
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United Shoe Machinery
Universal Match
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Vickers Electric Prods Div
Wang Laboratories
WE-Director Systems

MACHINES, Filling, including Bag, Bottle, Carton, etc.

Automatic Scale Co
Automatic Timing & Contls
Bowser Inc
Exact Weight Scale
Gump Co B F
International Instrument
Jedco Inc
Mettler Instr Corp
Nat'l Instrument Co
Pneumatic Scale Corp
Red Point Corp
Richardson Scale Co
Thayer Scale Co
Uehling Instrument

MANOMETERS, Electrical Contact

Consol Electrodynamics
Decker Corp
Dynametrics Corp
Ellison Draft Gage
Fischer & Porter Co
General Controls
Glass Instruments Inc
International Instrument
Jerber Engineering
Meriam Instr Co
Pacific Scientific
Philadelphia Scien Glass
Pic Automation Ctls
Relcon Inc
Republic Flow Meters
Rosemount Engrg Co
Scientific Instrument
Trimount Instrument Div
United Engineers Inc

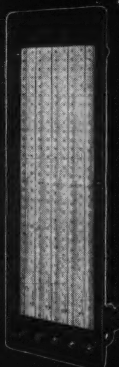
MANOMETERS, Glass, including Micro, Raised Well Type, Remote Reading, U-Tube, Test, etc.

American Meter
B-I-F Industries
Bacharach Indus Instr
Bailey Co Chas M
Central Scientific
Consol Electrodynamics
Defender Instrument
Dietz Co Henry G
Dwyer Mfg Co
Dynametrics Corp
Electrospace Corp
Ellison Draft Gage Co
Exactel Instrument
Fischer & Porter Co
Fisher Scientific Co
Flow Corporation
General Controls
Geotechnical Corp
Glass Instruments Inc
Granville-Phillips
Green Instrs, Henry J
Greiner Co Emil
Greiner Glassblowing
Hass Instrument
High Vacuum Equip
Hill & Co E Vernon
Ideal Aerosmith
Infilco Inc
Jerber Engineering
King Engrg
Kollsman Instr Corp
Labglass Inc
Manning Maxwell & Moore
Manostat Corp
Martin & Co H S
Meriam Instr Co
Moeller Instr Co
Natl Instrument Labs
Nester Company
Nurnberg Scientific
Nurnberg Thermometer
Penn Meter Co
Petrometer Corp
Philadelphia Scien Glass
Phoenix Precision Instr
Porter Inc Geo K
Precision Glass Products
Relcon Inc
Roger Gilmont Instrs
Scientific Glass App
Scientific Instrument
Simplex Valve & Meter
Specialties Inc
Taylor Instrument Cos
Trerice Co H O
Trimount Instrument Div
Uehling Instrument
United Engineers Inc
Vapor Recovery Systems
Wallace & Tiernan
Welch Mfg Co W M
Williamson Development

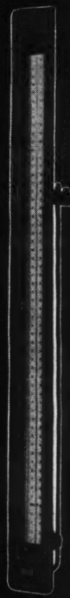
UNMATCHED ACCURACY

...in over 1000 different manometer forms

for flows



for pressures



for vacuums

Add to the uncompromising accuracy of Meriam Manometers the availability of a specific form most suited to the application. The result is simple, practical and permanently accurate instrumentation . . . at lowest cost . . . for every process and laboratory need.

Send for Bulletin C-12.

Meriam Manometer Instrumentation ...for pressures, vacuums, flows, liquid levels.

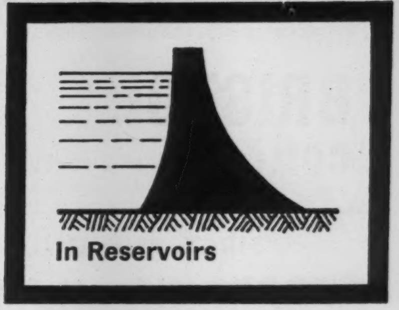
meriam

INSTRUMENT COMPANY
10920 Madison Ave. • Cleveland 2, Ohio

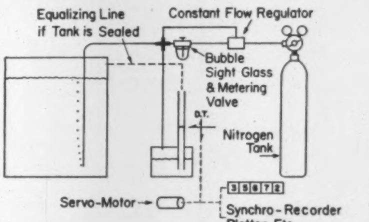
CIRCLE 61 ON READER-SERVICE CARD

A significant new announcement...

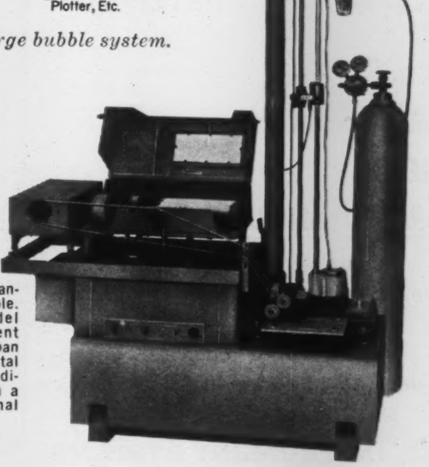
Precision Measurement of Any Liquid



■ This technique has proven to be of remarkable accuracy, utility and reliability—with any liquid; water, high-temperature products, petroleum derivatives, radio-active materials, the most active chemicals and molten metals. ■ Combination of the Exactel Servomanometer with the purge bubbler principle is resolving problem measurement situations. The technique is relatively new but thoroughly proven over the past three years. The process is one of weighing, rather than sensing surface level. Errors caused by temperature change, absorbed gases, etc., are eliminated. For this purpose the Servomanometers generally employ 32" or 60" Hg range, but other liquids or other ranges may be used. ■ The instrument's accuracies are such that systems now in use have been readily approved for billing purposes; so accurate, in fact, as to practically defy calibration. ■ The systems are simple, reliable and economical. Except for minor lubrication and tube-cistern cleaning at approximately annual intervals, Exactel Tank Gaging systems are expected to provide **70 to 100 thousand hours of service** with no electronic (transistorized servo-amplifiers are used) or mechanical maintenance in this service.


Equalizing Line if Tank is Sealed
Constant Flow Regulator
Bubble Sight Glass & Metering Valve
D.T.
Nitrogen Tank
Servo-Motor
35872
Synchro-Recorder Plotter, Etc.

Schematic of plumbing for purge bubble system.



Several alternate data handling options are available. Illustrated is 60" Model 1560IN-D for measurement of tank level with multispan mechanical recorder, digital encoder and counter to indicate level directly with a least unit to five decimal places.

EXACTEL INSTRUMENT COMPANY
89 Alice Avenue • Mountain View, California • YO 8-6558

CIRCLE 62 ON READER-SERVICE CARD

pH Automatic Controllers and Recorders

Bristol makes a very wide variety of pH Automatic Controllers and Recorders in round- and strip-chart models. The application of pH instruments in industry was pioneered by Bristol nearly 20 years ago. Thousands of Bristol pH Controllers and recorders are in use today in almost every industry. They are known for their high accuracy and rugged construction. Complete information on models offered and method of application is given in 36-page bulletin Q1304. Write for copy.

BRISTOL COMPANY 112 Bristol Rd., Waterbury 20, Conn.

CIRCLE 63 ON READER-SERVICE CARD

FIRST AND ONLY
RECORDING pH METER

Permanent pH Record • Simple to Operate • Adaptable • No Ink

A pH meter and strip chart recorder in one. Line operated. Continuously indicating. Can record continuously for 31 days at one inch per hour. With manual temperature compensator. Write for Bulletin No. 3R.

Price $245.00 complete, with Analytical protected pH probe unit

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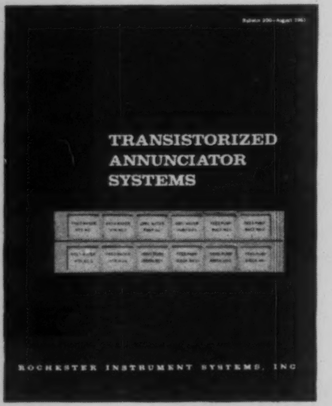
CIRCLE 64 ON READER-SERVICE CARD

pH
Analytical Measurements



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A NEW LINE OF TRANSISTORIZED ANNUNCIATORS . . .

is now available—completely solid-state and packaged in interchangeable, plug-in modules. R.I.S. annunciators give you superior design at no greater cost. Available in four standard sequences. Operation from 120 volts AC or 125 volts DC. Write for 12-page Bulletin No. 200 to:

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RIS
277 N. Union Street • Rochester 5, N. Y.

CIRCLE 65 ON READER-SERVICE CARD

MANOMETERS, High Pressure

Barton Instrument
Defender Instrument
Eclipse Fuel Engrg
Ellison Draft Gage Co
Exactel Instrument
General Controls
Hastings-Raydist
Infilco Inc
Jerber Engineering
Kollsman Instr Corp
Meriam Instr Co
Natl Instrument Labs
Relcon Inc
Republic Flow Meters
Taylor Instrument
Trimount Instrument Div
Uehling Instrument
Victory Engineering
Wallace & Tiernan

MONITORS, including Annunciators

Advanced Technology Labs
American Meter
Anadex Instruments Inc
Automatic Timing & Contls
Automation Dynamics
Beckman/Spinco Div
Century Elx & Insts
Consol Electrodynamics
Control Equipment Corp
Crump Instrument
Cunningham Son & Co
Datex Corp
Diamond Power Specialty
Dresser Elx/SIE Div
Edison Industries T A
Edwards Co Inc.
Electric Regulator
Electro Devices (Mo.)
Electro Instruments
Electro-Mechanical Res
Electrodynamic Instr
Fenwal Inc
Fischer & Porter Co
Illinois Testing Labs
International Instrs
International Res & Dev
Kahn & Co
Lampkin Labs
Lundell & Co
Maryland Telecomm
Milro Controls
Monitor Systems Inc
Motorola Military Elx
Non-Linear Systems
Nuclear-Chicago
Nuclear Materials & Equip
Panellit
Philco Corp
RMS Associates
Rochester Instr Sys
Ronan Panel Co
Scam Instrument Corp
Shand and Jurs
Taller and Cooper Inc
Thermo Electric Co
Tigerman Engineering
Torwico Electronics
United Engineers Inc
U S Controls Inc
Victoreen Instr Co
Waber Electronics
Waterman Products

MOTOR CONTROLLERS AND REGULATORS

ACF Electronics
Airborne Instr Lab
Airpax Electronics
Allen-Bradley
Allis-Chalmers
Amer Kloeckner-Moeller
Amer Meas & Control
Annin Company
Assembly Products Inc
Automatic Control Co
Automatic Timing & Contls
Automation Dev Corp
Bernco Engineer
Black, Sivalls & Bryson
Boehm Co R A
California Controls
Clark Controller
Conoflow
Control Panel Corp
Control Technology
Cooke Inc F J
Cutler-Hammer
Dalmotor Div
Datex Corp
Diehl Mfg Co
Dresser Elx/SIE Div
Dynex Inc
Electric Regulator
Electro-Mech
Electronic Controls Inc
Euclid Electric & Mfg
Furnas Electric
GE Apparatus Sales Div
G E Gen Purpose Contr
G E Specialty Control
General Controls
General Dynamics/Elx
General Radio
Green Rectifier
Guardian Electric
Gulton Industries
Hagan Chem & Controls
Hamilton Standard Div
Haydon Co A W
Heller Co Gerald K
Kearfott Div
Kingston Industries Inc
Machinery Electrification
Milro Controls
Minarik Electric
Monitor Controller Div
Norbatrol Electronics
North Electric Co
Northeastern Engrg
OPW-Jordan
Pacific Electro Magnetic
Pegasus Labs
Power Controls Div
Regent Controls
Rowan Controller Co
Sciaky Bros Inc
Servomechanism Inc
Square D Co
Superior Electric Co
Sylvania Lighting Prods
Syracuse Electronics
Talley Corp
Tenney Engineering
Texas Instruments Inc
Tipptronic Inc
United Control Systems
United Electric Controls
Varo Mfg Co
Vee-Arc Corp
Vickers Electric Prods Div
WE-Director Systems
Wacline Inc
Wickes Engrg & Constr

ORIFICE FITTINGS, Flanges, Plates, Seal Chambers, and Unions

American Meter
Auto-Control Labs
Bailey Meter Co
Barton Instrument
Bishop & Co J
Bristol Co
Commercial Iron Works
Conoflow
Cook Electric Co
Daniel Orifice Fitting
Dragon Engineering Co
Ellison Draft Gage Co
Federal Mfg & Engrg
Fischer & Porter Co
Fluidynamics
Foxboro Company
Gar Precision Parts
Granville-Phillips
Grinnell Co
Haveg Industries
Hays Corporation
High Vacuum Equip
Industrial Instrument
Jedco Inc
Meriam Instr Co
Missimers Inc
North American Mfg
Penn Meter Co
Pneu-Hydro Valve
Republic Flow Meters
Robinson Orifice
Rockwell Mfg Co
Simplex Valve & Meter
Taylor Instrument
United Aircraft Prods
Weatherhead Co

ORIFICES, Adjustable

Acme Industrial Co
Bailey Meter Co
Bristol Co
Dragon Engineering Co
Fluid Controls
GPE Controls
Madden Corp
Natl Instrument Labs
Scott Aviation Corp
Westinghouse Air Brake
Worley Jewel Co

PERISCOPES, Industrial and Smoke

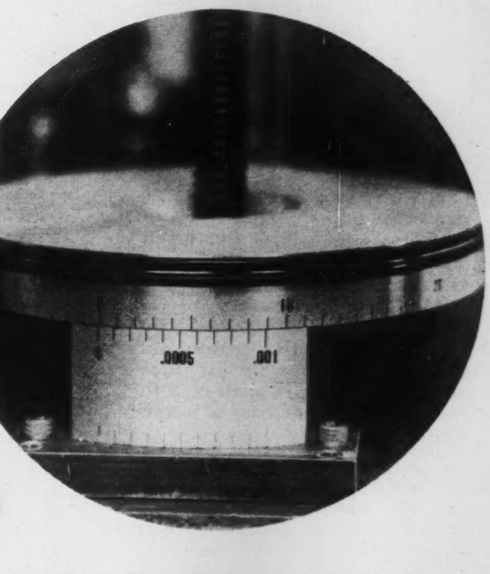
Alfa-American Corp
Buhl Optical Co
Daniel Orifice Fitting
Diamond Power Specialty
Diffraction Limited
Gaertner Scientific Corp
Gordon Enterprises
Kollsman Instr Corp
Lenox Instrument Co
Lerma Engrg Corp
Maryland Telecomm
Photomation Inc
Stocker & Yale Inc
Unertl Optical Co
Varo Mfg Co
Vought Camera Company

pH CONTROLLERS, INDICATORS and/or RECORDERS

Advanced Instr Corp
Analytical Measurements
Appalachian Electronic
Assembly Products Inc
B-I-F Industries
Bailey Meter Co
Barber-Colman
Beckman/Sci & Proc Div
Beckman/Spinco Div
Bristol Co
Cambridge Instrument
Coleman Instruments Inc
Daystrom/Weston
Electric Eye Equip
Fielden Electronics
Fischer & Porter Co
Fisher Scientific
Foxboro Company
General Dynamics/Elx
GE Apparatus Sales Div
Golden Instruments
Greiner Co Emil
Hagan Chem & Controls
Hays Corporation
Industrial Nucleonics
International Instrument
Leeds & Northrup
M-H Brown Instrs Div
Milton Roy Co
Phoenix Precision Instr
Polarad Electronics Corp
Precision Scientific Co
Process & Instruments
Sanborn Co
Schuco Scientific
Scientific Industries
Sel-Rex Corp
Special Instruments Lab
Swartwout Div
Taber Instrument

When Using This Guide look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

Precision Plus...



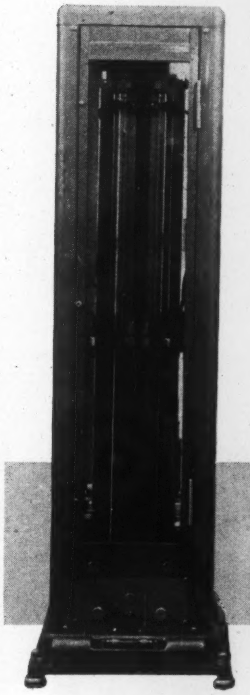
A versatile new precision instrument that will provide the highest accuracy in pressure measurement as a primary standard. Ideal introduces its Model 11-21 Series Double Cistern Nulling Manometer.

Completely practical for research or production. Easily modified or adapted to your particular need. Designed to keep pace with the increasingly complicated demands of modern research. Fast, accurate readings afforded even to operators with a minimum of manometer control experience. Available in ranges up to 105″. Special ranges upon request.

Sensitivity
.00002

Repeatability
.00004

Overall Accuracy
.0003 (30″ range)



Ideal Numerical Controlled Manometer Systems

Features:

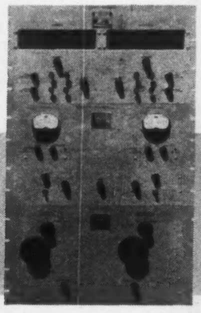
Push button or tape controlled data entry.

Automatic pressure servoed to bring mercury column to scanner position.

Decimal coded binary signal of scanner position for driving remote digital display and for use in automatic recorder or print out accessories.

Photo-electric null detector indicates when pressure has been established at check point.

Remote Readout of Dual 30″ Manometer

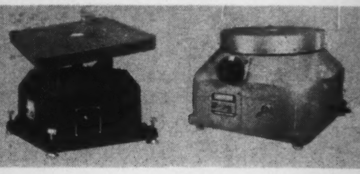


Longtime leaders in the field of instrument test equipment, Ideal-Aerosmith advance-design manometer systems, turn and motion tables, and needle valves guarantee superior performance. Ideal products are the direct result of close control, precise machining, thorough inspection and testing, and excellent workmanship. They conform to the most rigid specifications of precision, durability and long life.

Detailed literature is yours for the asking. Write, wire or telephone for prompt reply.

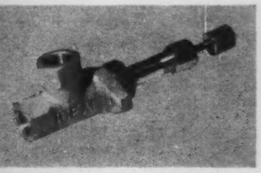
Rate of Turn Tables and Motion Tables

Long life, quality construction.
Instantly reversible synchronous motors.
Quick, positive selection of rates.
Precise rates through geared drives.
Unobstructed table surface.
Integrated pneumatic source to table.
Precision engraving.
Available in floor and table models.



Needle Valves

Most precise small flow control at pressures up to 10,000 P.S.I. Available in stainless steel or brass. Wide range of types and sizes including angle and straight types with or without panel mounting flanges. Five orifice sizes . . . four pipe sizes. Micrometer type "Vernier" indicating valves offered in most sizes.



MFRS. OF A FULL LINE OF INSTRUMENT TEST EQUIPMENT FOR PRESSURE SENSITIVE AND INERTIAL GUIDANCE SYSTEMS

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CIRCLE 66 ON READER-SERVICE CARD

HAGAN
pH
METER

For pH control applications, the Hagan system consists of a standard glass electrode and preamplifier, plus a Hagan Model H-O PowrLog receiver for recording and control.

Operating with a high degree of accuracy, the Hagan system provides measurement over a pH span of 2 to 12. The system is simple, easy to install and easy to maintain.

HAGAN CHEMICALS & CONTROLS, INC.

DIVISIONS: CALGON COMPANY, HALL LABORATORIES

HAGAN BUILDING, PITTSBURGH 30, PA.
In Canada: Hagan Corporation (Canada) Limited, Toronto
European Division: Via Flumendosa No. 13, Milano, Italy

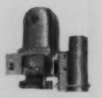
CIRCLE 67 ON READER-SERVICE CARD

PRESSURE TRANSMITTERS

INDICATING

MINI-LINE Pressure Transmitter directly indicates measured pressures and transmits standard SAMA pneumatic signals or a-c and/or d-c electric signals. Measures steam, liquid, or gas pressures in pipes and pressure vessels with a minimum range of 0-30 psig thru a maximum range of 0-8000 psig. Utilizes a motion balance mechanism. Request Specs P41-4 and E41-4 for details.

NON-INDICATING



f/b-LINE Pressure Transmitter pneumatically transmits measurements of steam, liquid, or gas pressures in pipes or pressure vessels with a minimum range span of 60 psig and a maximum range span of 6000 psig at pressures up to 7500 psig. Particularly applicable where highly suppressed ranges are desired. Consists of a Bourdon tube mechanism and a force balance transmitting unit. Request Spec P41-6 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 68 ON READER-SERVICE CARD

Taylor & Co W A
Taylor Instrument
Testing Machines Inc
Texas Instruments Inc
Thermo Electric Co
United Electric Controls
Wallace & Tiernan
Westronics Inc
Wheelco Indus Instrs

PHOTOELECTRIC CONTROLS, including Counters, Door Openers, etc. (see also Counters, Photoelectric—Cat. 2)

Abacus Inc
Allied Radio
Alpha Tech Pro
Analogue Controls Inc
Automation Devices Inc
Autotron Inc
Baranoff & Assoc
Berkeley Dynamics
Cetron Electronic
Clark Controller
Cutler-Hammer
Davenport Mfg
Daystrom/Weston
Durant Mfg
Dynapar Corp
Eastern Specialty Co
Edison Industries T A
Eldorado Electronics
Electric Eye Equip
Electronic Control
Electronic Counters
Energy Kontrols
Epic Inc
Farmer Electric
GPE Controls
General Dynamics/Elx
GE Apparatus Sales Div
G E Specialty Control
General Controls
Golden Instruments
Gurley W & L E
Heitz Inc Karl
Hoffman Electronics
Hughes Aircraft
Hydel Inc
Infrared Industries
M-H Industrial Controls
Machinery Electrification
MacLeod Inst Corp
Mallory & Co P R
Maryland Telecomm
Mason Instr Co
McIlvaine O T
Melpar Inc
Molded Insulation
National Standard Elx
Phoenix Precision Instr
Photobell
Photomation Inc
Pic Automation Ctls
Post Electronics
Presin Co
Redford Corp
Reliance Instr Mfg
Rheem Electronics
Sangamo Electric Co
Security Controls Inc
Sierra Research Corp
Specialties Inc
Spectra Electronics
Standard Instrument
Streeter Amet Co
Syracuse Electronics
Taller and Cooper Inc
Tele-Dynamics Div
Tri-Tronics Co
Trott Electronics
United Shoe Machinery
Uniwave Inc
Veeder-Root Inc
WE-Director Systems
Wells Inds
Wilson & Co G C
Wintronics
Worner Electronic Device

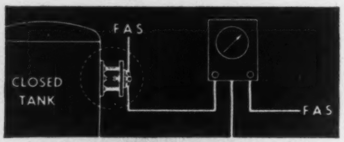
PITOT TUBES

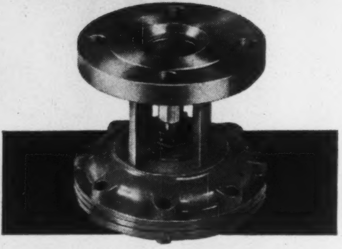
Advanced Dynamics
Aero Research Instr
Aerotec Industries
C-Mar Instrument
Central Scientific
Continental Sensing Inc
Customline Control Panel
Defender Instrument
Dwyer Mfg Co
Edcliff Instruments
Ellison Draft Gage Co
Flow Corporation
Foxboro Company
General Controls
General Regulator
Haledy Electronics
Hill & Co E Vernon
Infrared Industries
Kollsman Instr Corp
Leupold & Stevens Instr
Meriam Instr Co
Propulsion Dev Labs
Relcon Inc
Republic Flow Meters
Research Appliance Co
Rosemount Engrg Co
Servomechanism Inc
Slocomb Co J T
Sterling Precision
Taper Micrometer Corp
United Sensor & Control
Wallace & Tiernan

PRESSURE CONTROLLERS and TRANSMITTERS, Absolute or Static Pressure

Advanced Dynamics
Advanced Instr Corp
Aeronaut & Instr Div
Airborne Research & Dev
Aircraft & Missile
Airesearch Mfg Co
Allen-Bradley
American Meter
Amot Controls Corp
Applied Dynamics
Astromics Div
Automatic Control Co
Automatic Timing & Contls
Automation Dev Corp
B-I-F Industries
Bailey Co Chas M
Bailey Meter Co
Baldwin-Lima-Hamilton
Barton Instrument
Bayley Instrument
Bendix-Friez Instr
Bendix Montrose Div
Bently Scientific
Black, Sivalls & Bryson
Borg-Warner Controls
Bristol Co
Bulova Research
Burton Mfg Co
Cash Co A W
Cash Valve M'g
Churchill Lighting
Colvin Labs
Conoflow
Consol Controls
Cook Electric Co
Cutler-Hammer
Datex Corp
Daystrom/Weston
Daytronic Corp
Denison Engrg Div
Detroit Controls
Devar Systems
Dynametrics Corp
Eastern Industries
Edison Industries T A
Electro-Mech
Exactel Instrument Co
Fairchild Controls
Fischer & Porter Co
Fisher Governor
Foxboro Company
Fulton Sylphon Div
Furnas Electric
GPE Controls
G E Gen Purpose Contr
General Controls
General Dynamics/Elx
Glassco Instr
Greiner Co Emil
Hagan Chem & Controls
Hannifin Co

LOW COST RUGGED PRESSURE TRANSMITTER FOR THE TOUGH JOBS!





Conoflow Model P Transmitter is ideal for viscous fluids or materials with solids in suspension. It accurately measures pressure or liquid level and transmits a *linear* 3-15 psi signal to standard receiver elements. A low cost, rugged instrument with many features not found in more expensive devices. Complete separation of measuring diaphragm from pneumatic pilot prevents process fluids from backing up into air lines. Can be mounted either horizontally or vertically on open or closed vessels. No dip tubes, floats, etc. required inside tank. Ranges as low as 0 to 100" of water and pressures as high as 250 psi. Prices start at $130.00.

Write for Bulletin P.

CC 104

CONOFLOW SUBSIDIARY WALWORTH

CONOFLOW CORPORATION
FOREMOST IN FINAL CONTROL ELEMENTS
2100 ARCH STREET, PHILADELPHIA 3, PA.

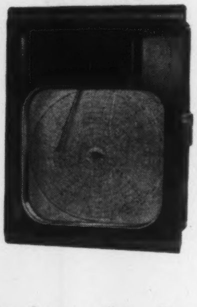
CIRCLE 69 ON READER-SERVICE CARD

Pressure Gauges, Recording and Automatic Control

Bristol Series 500 Gauges come in a very wide variety of models for recording and controlling pressure, draft vacuum, absolute pressure, liquid level in ranges from 0 to 6 mm of mercury absolute, full vacuum, and from 0 to 3 in. water to 10,000 psi.

These easy-to-use, easy-to-service instruments are highly accurate and extremely stable in all ranges of application.

Write for Bulletins G620 and G621.



BRISTOL COMPANY
112 Bristol Rd., Waterbury 20, Conn.

CIRCLE 70 ON READER-SERVICE CARD

VACUUM and PRESSURE GAUGES

TEST GAUGES—Equal or exceed A.S.A. Grade AA standards. Accuracy within ± ¼% of scale. Sizes from 4½ to 16 inches. **Catalog 400.**

PROCESS GAUGES—The premium SUPERGAUGE line. Accuracy: ± ½% of scale. Available with integral solid front wall for safety. **Catalog 1819.**

"A-LINE" GAUGES—Economical; mid-scale accuracy: ± 1% of scale. Meet all A.S.A. Grade A standards. Cast aluminum case, std. **Catalog 305.**

"O.E.M." GAUGES—Low-cost, drawn case line. Precision-built on volume basis. Midscale accuracy: ±2% of scale. Meet all A.S.A. Grade B standards. **Catalog 64A.**

AUTOMATIC CONTROLLERS

Indicating or Recording

"PILOT" CONTROLLERS—Low-cost pneumatic control. Thermometer or pressure elements. Can be valve mounted. **Catalog 510.**

BY-PASS PANEL mounts below "Pilot" for manual control. **(Bulletin F023).** Another option permits remote pneumatic set point adjustment. **Bulletin F024.**

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RECORDING CONTROLLERS with thermometer or pressure elements. Pneumatic or electric contact control. Charts: 6, 9, or 12-in.

USG INSTRUMENTS AND CONTROLS FOR

Temperatures from −350 to +1000 F • Pressures from 30 in. Hg vac. to 20,000 psi and above

THERMOMETERS

Mercury, Vapor, Gas or Organic Fills

"SUPERTHERM" DIAL TYPE in remote or direct reading (rigid stem or Multi-Angle) styles. Sizes: 3½, 4½, 6 and 8½ in. **Catalog 200.**

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USG RECORDERS—New 12-in. model features modern case with recessed bottom for easier connection. Available for pressure, too. **Catalog 300**

INDUSTRIAL GLASS STEM TYPES with highly visible "Red-reading Mercury." Variety of mountings. Sizes: 5, 7, 9, and 12-in. **Catalog 101.**

PNEUMATIC TRANSMISSION

PNEUMATIC TRANSMITTERS. Indicate transmitted variable. Match "Pilot" case. Accurate, sensitive, dependable. **Catalog 510.**

PNEUMATIC RECEIVERS. Offered in broad line. Bourdon or diaphragm actuation; 4½ to 16-in.; accuracy: to ⅛% of scale; single or duplex. **Catalog 510.**

GAUGE ACCESSORIES

USG accessories include a complete line of chemical attachments and pulsation dampeners. Also, pressure snubbers, gauge fittings, and tools.

Find Your Nearest Distributor In The 'Yellow Pages'

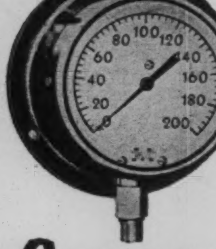
UNITED STATES GAUGE DIVISION

USG®

American Machine & Metals, Inc., Sellersville, Pennsylvania

CIRCLE 71 ON READER-SERVICE CARD

MARSHALLTOWN



Gauges

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A complete line of gauges in stock available for early delivery. Gauges from 10-inches water pressure to 30,000 P.S.I. to meet your specifications on any equipment.

- Pressure
- Vacuum
- Compound
- Altitude
- Combination
- Diaphragm
- Hydraulic
- Special Purpose
- Dial Thermometer (Vapor Tension or Bi-Metal)

Let Marshalltown answer your gauge problems . . . write for information and prices.

MARSHALLTOWN, IOWA
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MARSHALLTOWN MFG., INC.

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Leonard Inc, Wallace O
Leslie Co
M-H Brown Instrs Div
M-H Military Prods Grp
Manning Maxwell & Moore
Mason Neilan
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Micro Gee Products
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Taylor Instrument
Thermo Electric Co
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United Aircraft Prods
United Control Systems
United Electric Controls
Vacuum-Electronics
WE-Director Systems
Westinghouse Air Brake
Wheelco Indus Instrs
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PRESSURE GAGES with Alarms

Acme Gauge & Instr
American Meter Co
American Standard
Automatic Control Co
Automatic Timing & Contls
B-I-F Industries
Bailey Meter Co
Barton Instrument
Bendix-Friez Instr
Bristol Co
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Crosby-Ashton
Decker Corp
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Electro-Mech
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General Controls
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Helicoid Gage Div
High Vacuum Equip
Hydel Inc
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Manning Maxwell & Moore
Meriam Instr Co
Mid-West Instr
Murphy Mfg Inc
Newark Controls
Norwood Controls
Panellit Inc
Penn Meter Co
Reliance Instr Div
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Scientific Instrument
Statham Instruments
Taylor Instrument
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PRESSURE GAGES, Absolute Pressure

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Amer Standard Controls
Automatic Timing & Contls
BJ Electronics
Bailey Meter Co
Barton Instrument
Bendix Montrose Div
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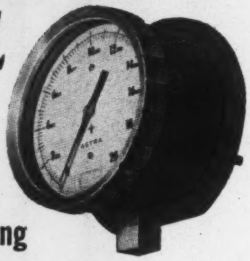
Central Scientific
Century Elx & Insts

The ASTRAGAUGE



Safe,
Accurate,
Easy Reading

For Pressures to 100,000 p.s.i.g.

prompt delivery

New 6" diameter gauge is available in 12 ranges from 1,000-100,000 p.s.i.g. Features: multiple turn 316 stainless steel Bourdon element for longer life and greater accuracy; dial readings spread over 300°; expendable diaphragm-type back to relieve internal pressure; safety plate in front of element; no welding or soldering used on element or socket.

Write for complete data and prices.

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First choice of the rocket and missile industry...

Three superlative Marsh products are widely used and approved by the aircraft and missile industry:

MARSH Pressure Gauges...
because they combine the most advanced features ever found in pressure, vacuum and compound gauges. There is a Marsh Gauge for every conceivable application.

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because they are guaranteed to give micrometer regulation at HIGH pressures—pressure up to 10,000 psi—and any temperature up to 500° F.

MARSH Dial Thermometers...
because they offer the precision and accuracy, a precision industry demands. Most complete line; wide temperature ranges, dial sizes, patterns, finishes.

All Marsh products available with AND threads

MARSH

New catalog covers all details

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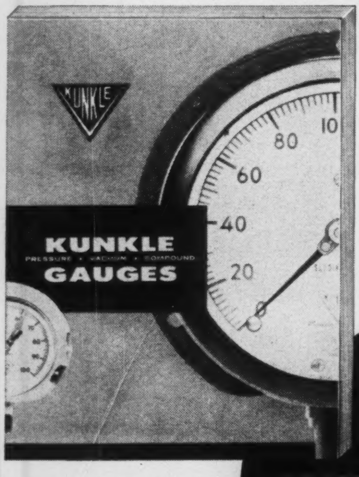
CIRCLE 73 ON READER-SERVICE CARD



KUNKLE

GAUGES

FOR PROCESS AND POWER INSTRUMENTATION

New
COMPREHENSIVE CATALOG
AVAILABLE ON REQUEST

Engineering data makes specifying the right gauge quick and easy

COMPLETE LINE

- Ranges from 15 p.s.i., or 30 inches of vacuum, to 20,000 p.s.i. in bronze, stainless steel and other alloys.
- Low pressure and liquid level bellows-actuated gauges.
- Missile and rocket GSE gauges.

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CIRCLE 75 ON READER-SERVICE CARD

W&T WALLACE & TIERNAN

FOR GUARANTEED ACCURACY IN INDUSTRIAL TESTING—

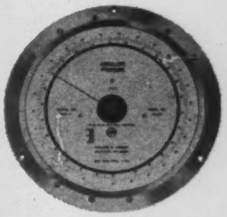
W&T PRECISION DIAL INSTRUMENTS & MERCURY STANDARDS

W&T Dial Indicators

measure differential and gauge pressures with guaranteed accuracies to 0.1% of full scale. These instruments cover ranges from 0-10″ H_2O to 0-500 psig, feature sensitivities to 0.01% FS.

Absolute Pressure Gauges

for precise absolute measurement and for calibration of production, general control, and laboratory instruments. Ranges: 0.1-20 mm. Hg to 0-500 psia. Accuracy: to 0.1% FS. Sensitivity: to 0.01% FS.



Hi Pressure-Lo Differential Gauge

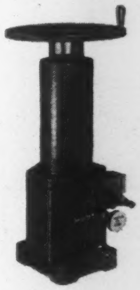
for fluid flow readings of small differentials at high pressures. 2 psi differential at pressures to 50 psi. 5, 10, and 20 psi differentials to 300 psi. Sensitivity: 0.2%. Accuracy: 0.5% FS.

Portable Pneumatic Calibrator

for field checking of pneumatic controls and instrumentation in the 3-15 psi range. Precision Dial Manometer and calibration accessories shock-mounted on aluminum panel in carrying case. Allows high accuracy checking and calibration in shop or at installation site.

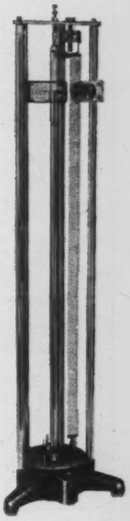
Aneroid Manostat

for accurately controlling vacuum apparatus, and for calibration and testing of pressure sensitive instruments and components. Simple handwheel control. Range: 0.8-60″ Hg absolute pressure. Continuously adjustable to 0.01″ Hg within range.



Mercurial Manometer

for use as calibrating standard for absolute, gauge and differential pressures, and as a precise vacuum indicator. Range: 0-31.5″ Hg. Accuracy: 1/5000 of full scale. Readings accurate to 0.005″ Hg.



All Wallace & Tiernan Precision Instruments feature:

- Custom calibration up to 100 points for maximum accuracy, and hand graduation up to 1000 points.
- Easy readability. Compact dials give accuracy of mercury column plus convenience.
- Full temperature compensation by selection of precision components and materials.
- Portability. Instruments are instantly ready for use in shop or field—no adjustment is needed.

Publications are available for each instrument. Write Dept. 61.48-A

WALLACE & TIERNAN INC.
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

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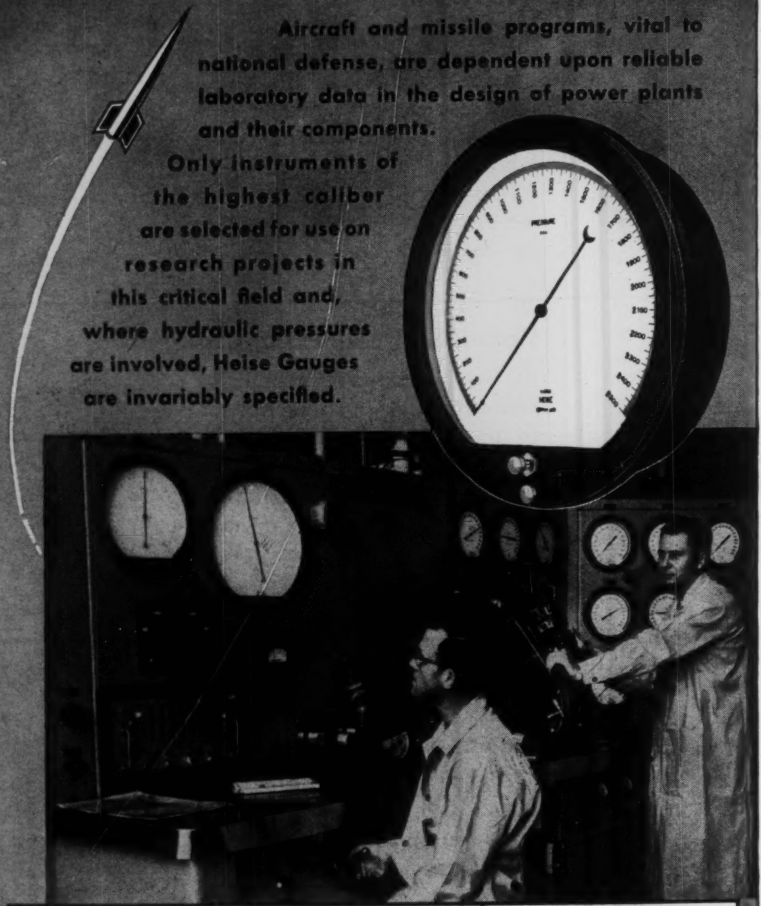

HEISE GAUGES

Where ACCURACY *is Paramount*

Aircraft and missile programs, vital to national defense, are dependent upon reliable laboratory data in the design of power plants and their components. Only instruments of the highest caliber are selected for use on research projects in this critical field and, where hydraulic pressures are involved, Heise Gauges are invariably specified.

ACCURACY	HYSTERESIS	CAPACITY
0.1 of 1%	0.1 of 1%	0-100,000 p.s.i.

This Hydraulic Test Stand, manufactured by the Test Equipment Division of Consolidated Diesel Corporation and featuring Heise Gauges, is typical of the aircraft and missile ground support equipment that goes into the defense effort.

Dial Sizes	FULL SCALE READING (P.S.I.)						
	0-15 to 0-5,000 inclusive	Over 0-5,000 and including 0-20,000	Over 0-20,000 and including 0-30,000	0 to 40,000	0 to 50,000	0 to 75,000	0 to 100,000
8½"	$183.50	$205.50	$238.50				
12"	$209.50	$231.50	$264.50	$275.50	$286.50	$336.50	$386.50
16"	$255.50	$277.50	$310.50	$321.50	$332.50	$382.50	$432.50

DELIVERY — 2 WEEKS FOR MOST RANGES — PRICE F.O.B. NEWTOWN

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BROOK ROAD, NEWTOWN, CONNECTICUT, U.S.A.

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Industrial Instrument
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Uehling Instrument
Ultradyne Inc
United Electric Controls
U S Gauge Div
Wallace & Tiernan
Warren Automatic Control
Weksler Instruments
Welch Mfg Co W M
Wiancko Engrg Co

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Advanced Instr Corp
American Meter
American Standard
Astra Corp
Automatic Timing & Contls
BJ Electronics
B-I-F Industries
Bailey Meter Co
Baldwin-Lima-Hamilton
Barton Instrument
Blackhawk Mfg Co
Borg-Warner Controls
Bristol Co
Buck Instrument
Century Elx & Insts
Chatillon John
Consol Electrodynamics
Crosby-Ashton
Daystrom/Weston
Daytronic Corp
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Edcliff Instruments
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Electric Autolite
Ellison Draft Gage Co
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Howell Instrs
Hydel Inc
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International Register
Kollsman Instr Corp
Korfund Co
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M-H Brown Instrs Div
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Marsh Instr Co
Marshalltown Mfg
Martin-Decker Corp
Mason Neilan
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Newark Controls
Norwood Controls
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Pacific Scientific
Panellit Inc
Philco Lansdale
Powers Regulator
Relcon Inc
Reliance Instr Div
Republic Flow Meters
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Rockwell Mfg Co
Sanborn Company
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Seegers Mfg
Simmonds Precision Prods
Smith Inc Arthur F
Solid State Electronics
Statham Instruments
Stratos Div
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Taylor Instrument
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Uehling Instrument
Ultradyne Inc
U S Gauge Div
Victor Equipment
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Weksler Instruments
Westronics Inc
Wheelco Indus Instrs

PRESSURE INDICATORS, Electrical Resistance

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Astromics Div
Automatic Control Co
Automatic Timing & Contls
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BJ Electronics
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Datex Corp
Daystrom/Weston
Detroit Controls
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Ellison Draft Gage
General Controls
Gilmore Industries
Glassco Instr
Gulton Industries
Hagan Chem & Controls
Hastings-Raydist
Howell Instrs
Hydel Inc
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Kollsman Instr Corp
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Physical Sciences Corp
Rahm Instruments Div
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Robertshaw-Fulton Contl
Servonic Instruments
Sirco Products Inc
Smith Inc Arthur F
Taber Instrument
Thermo Electric
Trans-Sonics
Westronics Inc
Wheelco Instruments Div

PRESSURE INDICATORS and/or RECORDERS, High (Above 1000 psi) Pressure

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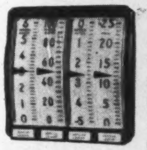
Aeronaut & Instr Div
Amer Meas & Control
American Meter Co
American Standard
Amot Controls Corp
Asea Electric Inc
Astra Corp
Automatic Timing & Contls
BJ Electronics
Bailey Meter Co
Barber-Colman
Barton Instrument
Bendix Montrose Div
Bristol Co
Buck Instrument
Computer Instruments
Crosby-Ashton
Custom Comp Switches
Daytronic Corp
Daystrom/Weston
Defender Instrument
Detroit Controls
Dickson Co
Edcliff Instruments
Edison Industries T A
Esterline-Angus
Exactel Instrument
Fairchild Controls
Fischer & Porter Co
Foxboro Company
General Controls
Gilmore Industries
Glassco Instr
Gulton Industries
Hagan Chem & Controls
Hastings-Raydist
Hays Corporation
Heise Bourdon Tube
Helicoid Gage Div
High Pressure Equip
Howell Instrs
Hydel Inc
Industrial Instrument
Industrial Measurements
Kistler Instrument Corp
Kunkle Valve Co
Leeds & Northrup
M-H Brown Instrs Div
Manning Maxwell & Moore
Marsh Instr Co
Martin-Decker Corp
Mason Neilan
Natl Electronics (Wyo)
Norwood Controls
Orbitran Co
Pneumercator Co
Rahm Instruments Div
Reliance Instr Div
Republic Flow Meters
Robertshaw-Fulton Contl
Rochester Mfg Co
Sanborn Co O
Scientific Instrument
Scientific Products

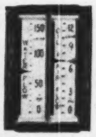
PRESSURE AND DRAFT GAGES

INDICATOR-RECEIVER-TRANSMITTER



Measures and indicates draft, pressure, differential pressure, or level. Pneumatically transmits these measurements, if desired. May be applied as direct-connected indicating gages, large scale indicating transmitters, and/or indicating pneumatic receivers. Standard ranges from 0-0.5" H_2O to 0-5000 psig. 7" scale length. Request Spec M42-2 for details.

INDICATOR-RECEIVER



Miniature vertical gage unit for the indication of one or more measured variables. For direct-operating and/or pneumatic or electric receiving within standard temperature, vacuum, pressure, and receiver ranges. Two variables using a common scale may be indicated by a single vertical gage unit. 3" scale length. Request Specs P11-1 and E12-1 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

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Taylor Instrument
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Trerice Co H O
Uehling Instrument
Ultradyne Inc
U S Gauge Div
Victor Equipment
Weksler Instruments
West Instrument Corp
Westronics Inc
Wheelco Instruments Div

PRESSURE INDICATORS, Peak, including Blast Meters

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Atlantic Research
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Gilmore Industries
Glassco Instr
Hagan Chem & Controls
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Norwood Controls
Owens-Illinois Glass Co
Robertshaw-Fulton Contl
Sirco Products Inc
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Uehling Instrument
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U S Gauge Div
Westronics Inc

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Bendix Montrose Div
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Consol Electrodynamics
Crosby-Ashton
Ellison Draft Gage Co
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General Controls
Glassco Instr
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Martin-Decker Corp
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Seegers Mfg
Simmonds Precision Prod
Specialties Inc
Sunshine Scientific
Taber Instrument
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Bristol Co
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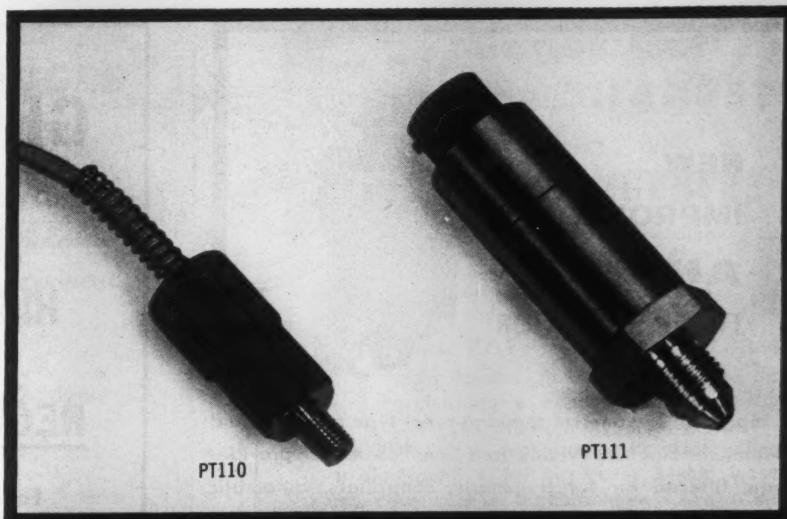
Clark Electronic Labs
Colvin Labs
Consol Controls
Consol Electrodynamics
Cook Electric Co
Crescent Engrg & Res
Curtiss Wright IMI
Datran Electronics
Daystrom/Mil Elx
Daystrom/Wiancko
Detroit Controls
Dyna-Empire Inc
Dynamic Instr



MINIATURE PRECISION PRESSURE TRANSDUCERS

◇ HIGH ACCURACY ◇ HIGH OVERLOAD ◇ LOW COST

Dynisco's new models PT110 and PT111, bonded strain gage transducers are ideally suited for high pressure applications requiring a miniature high-accuracy device with high overload characteristics yet they are low in cost.

PRESSURE RANGES
MODELS PT110 and PT111

Full Scale Pressure Rating	Maximum Pressure
0-1000 PSIG	4,000 PSIG
0-3000 PSIG	15,000 PSIG
0-5000 PSIG	20,000 PSIG
0-10,000 PSIG	20,000 PSIG

PERFORMANCE SPECIFICATIONS

Combined Non-linearity and Hysteresis*	0.25% F.S.
Repeatability	0.1% F.S.
Temperature Range	—65°F. to +250°F.
Temperature Drift	1% F.S./100°F.
Temperature Effect on Sensitivity	½% F.S./100°F.

*Deviation from a straight line thru the zero pressure and full scale pressure output points.

DYNISCO
DIVISION OF AMERICAN BRAKE SHOE COMPANY
42 CARLETON STREET • CAMBRIDGE 42, MASSACHUSETTS

CIRCLE 79 ON READER-SERVICE CARD

NEW IMPROVED AIRPAK FILTER-REGULATOR

An improved, inexpensive reducing-relief type regulator and air filter combination. Widely used Conoflow Airpak provides clean, filtered air for pneumatic controllers, automatic machines and similar air-operated equipment. A highly efficient, compact and rugged unit, easily installed and quickly serviced. Filter removed for cleaning simply by loosening one capnut. Available in materials, ranges and dripwell capacities to suit all conditions. 300 psi pressure rating. ¼" NPT connections.

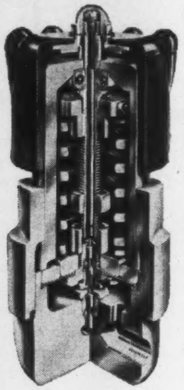
WRITE FOR BULLETIN H

CC 109

CONOFLOW CORPORATION
FOREMOST IN FINAL CONTROL ELEMENTS
2100 ARCH STREET, PHILADELPHIA 3, PA.

CIRCLE 80 ON READER-SERVICE CARD

GROVE SMALL VOLUME HIGH PRESSURE REGULATORS



For accurate control of air, gas, liquid

Designed for reducing, back pressure and direct operating relief, or various combinations of these services. Inlet pressure ratings to 10,000 psi. Control pressure range from 0 to 6,000 psi on reducing and back pressure service, and up to 10,000 psi on relief service. Write for Bulletin No. 125-D.

GROVE VALVE AND REGULATOR COMPANY
6529 Hollis Street, Oakland 8, California

CIRCLE 82 ON READER-SERVICE CARD

HAGAN PRESSURE TRANSDUCER

The Hagan Model A-2 Transducer is a current feedback, torque balance pressure transducer with low drift characteristics and high speed. The A-2 is designed for use in precision electronic control systems or in single or multiple readout systems. With a companion amplifier, the A-2 produces a DC signal of 3 to 28V or 0 to 25V directly proportional to the input pressure. Ideal for use with data processing systems.

HAGAN CHEMICALS & CONTROLS, INC.
DIVISIONS: CALGON COMPANY, HALL LABORATORIES
HAGAN BUILDING, PITTSBURGH 30, PA.
In Canada: Hagan Corporation (Canada) Limited, Toronto
European Division: Via Flumendosa No. 13, Milano, Italy

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Fairchild Controls
Fielden Electronics
Foxboro Company
GPE Controls
Glassco Instr
Gulton Industries Inc
Hagan Chem & Controls
Hamilton Standard Div
Hastings-Raydist Inc
Hays Corporation
Heise Bourdon Tube
High Temperature Instrs
Instrol Inc
International Resistance
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Kulite-Bytrex Corp
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Leonard Inc, Wallace O
Manning Maxwell & Moore
Micro Systems
Norwood Controls
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Polyphase Instr Co
Rahm Instruments Div
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PRESSURE REGULATORS, Air or Gas

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Airborne Research & Dev
Aircraft & Missile
Airesearch Mfg Co
Airmatic Valve Inc
Altair Inc
American Meter
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Atlas Valve Co
Automatic Timing & Contls
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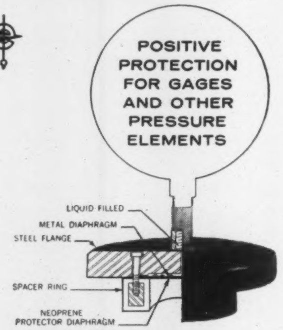
Bailey Meter Co
Barton Instrument
Bastian Blessing Co
Bellows-Valvair
Black, Sivalls & Bryson
Bobrick Aero Missile
Bristol Co
Burton Mfg Co
Cardair Div
Cash Co A W
Cash Valve Mfg
Circle Seal Products
Clary Corp
Conoflow
Consol Controls
Cornelius Co
Cox Instruments
Custom Comp Switches
Cutler-Hammer
Dahl Co G W
Davis Regulator
DeVilbiss Co
Eclipse Fuel Engrg
Fischer & Porter Co
Fisher Governor
Fluid Mechanisms
Foster Engineering Div
Foxboro Company
Fulton Sylphon Div
General Controls
General Dynamics/Elx
General Regulator
Gits Bros Mfg
Golden Anderson
Great Lakes Mfg
Grove Valve & Regulator
Hagan Chem & Controls
Hammel-Dahl/Foster Engrg
Hamilton-Thomas
Hannifin Co
Herion Inc
Hoke Inc
Hunt Valve Co
Ideal Aerosmith
IMC Magnetics
International Instrument
Keckley Co O C
Kenett Corp
Kieley & Mueller
Leonard Inc Wallace O
Leslie Co
Lexington Controls
M-H Brown Instrs Div
Manning Maxwell & Moore
Manostat Corp
Marotta Valve


POSITIVE PROTECTION FOR GAGES AND OTHER PRESSURE ELEMENTS
LIQUID FILLED
METAL DIAPHRAGM
STEEL FLANGE
SPACER RING
NEOPRENE PROTECTOR DIAPHRAGM

CHEMSEAL

Neoprene covered chemical diaphragm seal

For use on lines or equipment carrying slurries, pulp stock, dirty gases, corrosive fluids or air-entrained abrasives. Protects metal diaphragm from attack—easily cleaned without disassembly.

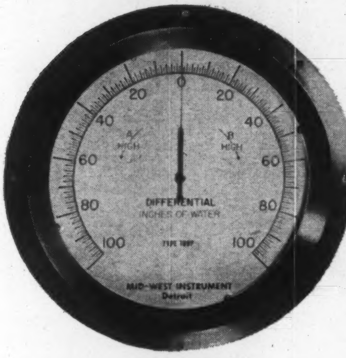
Chemseal Model 100 may be used in services up to 250 psig at temperatures from −20F to 200F with all fluids not destructive to neoprene. Outlet connection, 2"—150# ASA flange. Other sizes can be supplied to order.

For details on the Chemseal Gage Protector, write for Bulletin C-100.

ASSOCIATED CONTROL EQUIPMENT, INC.
P. O. Box 136, Coraopolis, Pa.

CIRCLE 83 ON READER-SERVICE CARD

DIFFERENTIAL GAUGES



A rugged, dependable instrument to fit your applications

MID-WEST DIFFERENTIAL INSTRUMENTS OFFER:

☆ 4000 PSI WORKING PRESSURE
☆ FULL OVERRANGE PROTECTION
☆ 100 INCHES OF WATER TO 400 PSID
☆ STANDARD & PRECISION MODELS

SPECIAL DESIGNS MADE TO ORDER

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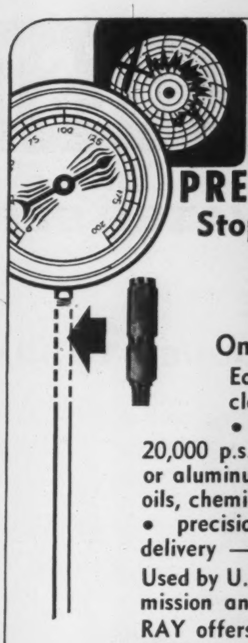
ASTRA ASSOCIATES INC., 1021 E. STATE FAIR
DETROIT 3, MICHIGAN

CIRCLE 84 ON READER-SERVICE CARD

Gages Got the SHAKES?



RAY PRESSURE SNUBBERS

Stop: Shaky or False Readings
Erratic Operation of Equipment
Frequent Instrument Calibration
Excessive Wear on Instruments and Equipment

Only RAY Gives you all of these

Easily and quickly installed • Self cleaning • Functions in any position • No maintenance • vacuum to 20,000 p.s.i. • brass, stainless steel, monel, or aluminum • for air, water, steam, gases, oils, chemicals • adjustable — 13 variations • precision made to .00025 in. • stock delivery — special units designed to order. Used by U. S. Navy, Air Force, Maritime Commission and thousands of industrial leaders. RAY offers you the Pressure Viscosity Chart PV-1 . . . the only system of its kind that enables you to quickly and easily specify the best unit for each application.

Send for your PV-1 Chart now!

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Pneu-Hydro Valve
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Reliance Instr Mfg
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Rockwell Mfg Co
Schade Valve Mfg Co
Schrader's Son Div
Scientific Instrument
Scott Aviation Corp
Security Valve Co
Seely Instrument
Sheffield Corp
Sierra Engineering
Spence Engrg Co
Square D Co
Stewart-Warner Corp
Stratos Div
Talley Corp
Taylor Instrument
Thermco Instrument Corp
Trerice Co H O
True-Flo Valve
United Aircraft Prods
United Electric Controls
U S Gauge Div
Vapor Recovery Systems
Victor Equipment
Vinson Engrg & Sales
Vinson Systems
Wallace & Tiernan
Warren Automatic Control
Watts Regulator Co
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Wilkerson Corp

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Autoclave Engineers
Bailey Co Chas M
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Cardair Div
Cash Co A W
Cash Valve Mfg
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Consol Controls
Cornelius Co
Dahl Co G W
Farris Engineering
Gar Precision Parts
General Controls
Hamilton-Thomas
Henry Valve Co
High Pressure Equip
Kearney Industries
Pneu-Hydro Valve
Pressure Products Indust
Propulsion Dev Labs
Scott Aviation Corp
Trerice Co H O
Victor Equipment
United Aircraft Prods
Westinghouse Air Brake

PRESSURE SNUBBERS

Breeze Corporation
Bristol Co
Chemiquip
Defender Instrument
Gar Precision Parts
Helicoid Gage Div
Industrial Engrg Corp
King Engrg
Kunkle Valve Co
Manning Maxwell & Moore
Martin-Decker Corp
Murphy Mfg Inc
Operating & Maintenance
Parker-Hannifin Corp
Pressure Products Indust
Relcon Inc
Republic Mfg Co
Sirco Products Inc
Trerice Co H O
U S Gauge Div
Weksler Instruments

PRESSURE TESTING DEVICES, High Pressure (above 1000 psi)

Amer Meas & Control
Amthor Testing
Asea Electric Inc
Auto Control Labs
Autoclave Engineers
Barton Instrument
Bristol Co
Bytrex Corporation
Computer Instruments
Cornelius Co
Cox Instruments
Crosby-Ashton
Davies Brothers
Denison Engrg Div
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Emery Co A H
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Fischer & Porter Co
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Marsh Instr Co

- PRIMARY PRESSURE STANDARD
- mercurial BAROMETERS
- precision MANOMETERS
- PRESSURE CONTROLLERS

The Finest Instruments of Their Kind in the World!

√ AUTOMATIC INDICATING and/or AUTOMATIC CONTROLLING BAROMETERS
Remote operation & control optional.

√ MICROMETER STANDARD BAROMETER
Type MS-2, Primary Pressure Standard, Accuracy .001″ RMS
Ranges: 0-31″, 0-62″, 0-100″ Hg.

√ BAROMETERS AND MANOMETERS,
Type A-1, Precision Mercurial, Temperature and Gravity Compensation
Ranges: 0-31″, 0-62″, 0-105″ Hg.

√ PHOTO SCANNER, Type PSR-1
Micro Reading (.0001″), pressure deviation signal, Accessory for Type A-1 Barometers and Manometers

√ PRESSURE CONTROLLER, Type PSC-2
Servo + Manual operation for automatic setting and holding pressures to within +.0005″ Hg.

For special problems or more information write:

THE HASS INSTRUMENT CORPORATION
Precision Pressure Standards and Controls

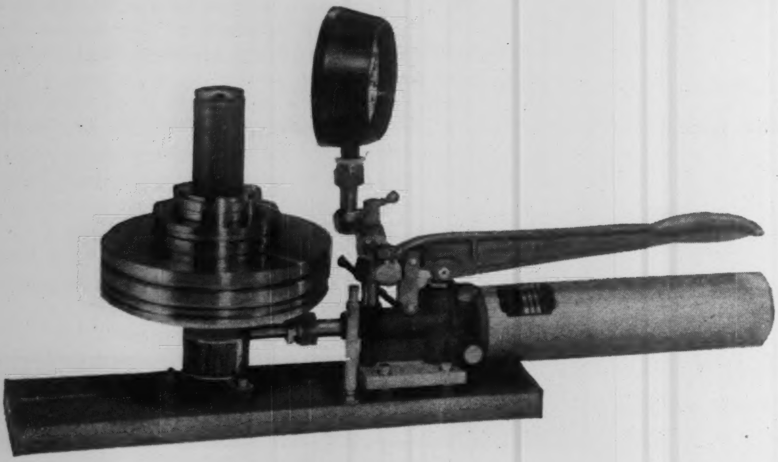
6173 Branch Avenue • Washington 23, D. C. • Hickory 9-5454

CIRCLE 86 ON READER-SERVICE CARD

PRESSURE TESTERS

TYPE T
DISTILLED WATER SERVICE
TYPE R
OIL SERVICE

WORKING PRESSURES TO 13,000 PSI



FOUR testers in ONE unit

1. Portable pressure testing.
2. Comparator testing with test gages.
3. Dead weight testing.
4. Dead weight gage.

PLEASE REQUEST CATALOG 761

MANSFIELD & GREEN INC.
6185 Cochran Rd., Cleveland 39, Ohio

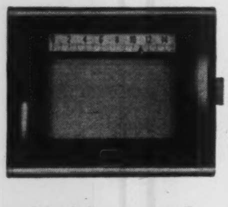
CIRCLE 87 ON READER-SERVICE CARD

Pyrometers, Automatic Controllers, Indicators, Recorders

The Bristol line of Pyrometers includes electronic potentiometer, millivoltmeter, thermocouple, and radiation types in indicating, single-pen, two pen, and multiple record (up to 24) models.

Strip-and round-chart recorders and automatic controllers are available with any of the following types of control: electric, electronic, or air-operated with all types of control actions and as program controllers.

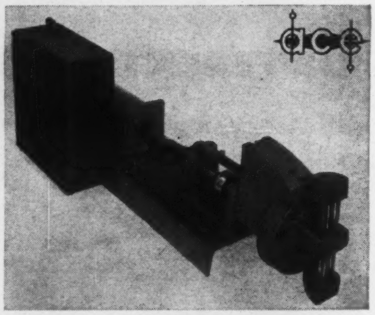
Write for Bulletins P1245A, P1242, P1244, P1248, and P1238.



Bristol Dynamaster ® Electronic Potentiometer

BRISTOL COMPANY
112 Bristol Rd., Waterbury 20, Conn.

CIRCLE 88 ON READER-SERVICE CARD



all pneumatic METERING PUMP

The Servo-Gauge Metering Pump is pneumatically powered and controlled. Positive displacement pump plunger is operated by a pressure loaded, pneumatically powered piston, the action of which is controlled by a Servo-Gauge Pneumatic Oscillator.

This pump is particularly well suited for explosion-hazard areas, and is available with discharge capacities from 0.12 gph to 82.5 gph. Discharge pressure ranges to 5,000 psig. The Servo-Gauge Metering Pump is accurate and features low maintenance. For details on operation and application, write for Bulletin P-21.

ASSOCIATED CONTROL EQUIPMENT, INC.
P. O. Box 136, Coraopolis, Pa

CIRCLE 89 ON READER-SERVICE CARD

Martin-Decker Corp
Mechanical Products Corp
Mefco Sales & Service
Micro Systems
Norwood Controls
Pressure Products Indust
Racine Hydra & Machy
Robertshaw-Fulton Contl
Ruska Instrument Corp
Scanivalve Co
Scientific Instrument
Scott Aviation Corp
Solid State Electronics
Sunshine Scientific
Trerice Co H O
United Aircraft Prods
United Control Systems
United Electric Controls

PRESSURE TRANSMITTERS

Advanced Dynamics
Advanced Instr Corp
Aeronaut & Instr Div
American Meter
Astra Corp
Astromics Div
Automatic Control Co
Automatic Timing & Contls
B-I-F Industries
Bailey Meter Co
Barton Instrument
Bendix Montrose Div
Black, Sivalls & Bryson
Bristol Co
Bulova Research
Century Elx & Insts
Conoflow
Consol Controls
Datex Corp
Detroit Controls
Devar Systems
Dynametrics Corp
Edison Industries T A
Fielden Electronics
Fischer & Porter Co
Fisher Governor
Foxboro Company
GPE Controls
General Regulator
Glassco Instr
Hagan Chem & Controls
Hays Corporation
Heise Bourdon Tube
Houston-Fearless Corp
Industrial Instrument
Infilco Inc
Instrol Inc
Instruments Inc
International Resistance
Kearfott Div
King Engrg
Kollsman Instr Corp
Leslie Co
M-H Brown Instrs Div
Manning Maxwell & Moore
Mason Neilan
Moore Products Co
Motorola Military Elx
Norden Division
Norwood Controls
OPW-Jordan
Pace Engrg Co
Penn Meter Co
Powers Regulator
Rahm Instruments Div
Republic Flow Meters
Robertshaw-Fulton Contl
Rosemount Engrg Co
Sanborn Company
Servomechanism Inc
Servonic Instruments
Sierra Research Corp
Sirco Products Inc
Specialties Inc
Standard Controls Inc
Statham Instruments
Swartwout Div
Taber Instrument
Taylor Instrument
Trans-Sonics
Ultradyne Inc
United Aero Prod
U S Gauge Div
Waltham Electronics
Westinghouse Air Brake
White Avionics Corp
Yarnall-Waring

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Amer Meas & Control
American Meter Co
Automatic Control Co
Automatic Timing & Contls
Automation Dev Corp
Bailey Meter Co
Bald Eagle Corp
Baldwin-Lima-Hamilton
Barber-Colman
Bayside Timers
Beattie Coleman
Bernco Engrg Corp
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Camera Equipment Co
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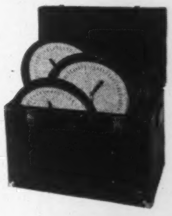
PORTABLE PRESSURE CALIBRATOR

Quick, on-the-spot calibration of pressure gauges, transducers and their systems with a compact unit.

- Laboratory accuracy under field conditions.
- Ultimate in high precison pressure measurements.
- Compact and portable for field use.
- Guaranteed accuracy ±.15%, including factors of temperature, hysteresis and calibration.
- Uses safe dry nitrogen.
- Compact carrying cases contain instrument and gauges.
- Choice of gauges from 60 PSI to 6,000 PSI.
- Easy to operate.

Write for
Technical Brochure T510



MARTIN DECKER

Precision Pressure Instruments
Testing—Weighing—
Load and Force Measurement

M/D

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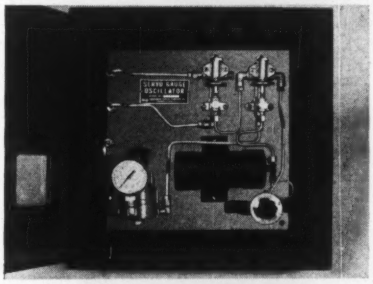
BRANCH OFFICES: Cleveland 14, Ohio, 1787 East 24th St. - Philadelphia 7, Pennsylvania, 324-26 No. 9th St.

CIRCLE 90 ON READER-SERVICE CARD



SERVO-GAUGE OSCILLATOR

the all pneumatic timer

The Servo-Gauge Oscillator is a pneumatically actuated timer with no moving parts. An ideal timer for explosion hazard areas, remote locations with no electric power, for such applications as cycling of control valves for slurry lines.

Frequency from 0.3 to 60 cycles per minute; the Oscillator output signal is a rectangular pressure wave with an amplitude of any pressure from zero to 30 psig.

May be used in combination with the ACE Metering Pump for a wide variety of applications. Write for Bulletin P-20.

ace

ASSOCIATED CONTROL EQUIPMENT, INC.
P. O. Box 136, Coraopolis, Pa.

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Foxboro Company
GE Specialty Control
General Controls
General Dynamics/Elx
Hagan Chem & Controls
Haydon Co A W
Haydon Co A W (Calif)
Hoover Electronics
Houston-Fearless Corp
Hub-Pot Inc
Industrial Timer Corp
Instr Development Labs
Instruments Inc
Jordan Controls
Leeds & Northrup
Lundy Mfg Corp
M-H Brown Instrs Div
M-H Military Prods Grp
Martin-Decker Corp
Mason Neilan
Milgo Electronics
Monitor Systems Inc
Montgomery Mfg
Pace Controls
Parabam Division
Partlow Corp
Pearce-Simpson Inc
Philco Corp
Physical Sciences Corp
Poly-Scientific Corp
Powers Regulator
RCA Systems Support
Redford Corp
Reliance Instr Div
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Royson Engrg Co
Sanders Laboratories
Simplex Time Recorder
Slip Ring Co of Amer
Soundtronics Labs
Standard Electric Time
Taller and Cooper Inc
Taylor Instrument
Tempo Instrument
Tinius Olsen Testing
Trott Electronics
United Electric Controls
U S Controls Inc
U S Gauge Div
Warner & Swasey Co
WE-Director Systems
Zenith Electric

PUMP GOVERNORS, including Regulators

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Bailey Co Chas M
Black Sivalls & Bryson
Cash Co A W
Cash Valve Mfg
Davis Regulator
Electric Regulator
Fisher Governor
Flow Actuated Control
Foster Engineering Div
Fulton Sylphon Div
General Controls
Hagan Chem & Controls
Hamilton-Thomas
Keckley Co O C
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Leslie Co
Mason Neilan
Natl Time & Signal
OPW-Jordan
Racine Hydra & Machy
Relcon Inc
Republic Flow Meters
Research Controls
Robertshaw-Fulton Contl
Santa Fe Instruments
Schade Valve Mfg Co
Spence Engrg Co
Stratos Div
Warren Automatic Control
Wilkerson Corp

PUMPS, Metering and Proportioning (see also Flowmeters, Positive Displacement)

Airmatic Valve Inc
Allis-Chalmers
American Meter Co
Applied Dynamics
Associated Control
Automatic Timing & Contls
B-I-F Industries
Bendix Utica Div
Bowen Corp
Bowser Inc
Clark-Cooper
Continental Pump
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Houdaille Industries
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Lapp Insulator
Madden Corp
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Aero Research Instr
Atkins Technical Inc
Barber-Colman
Beach-Russ Co
Bristol Co
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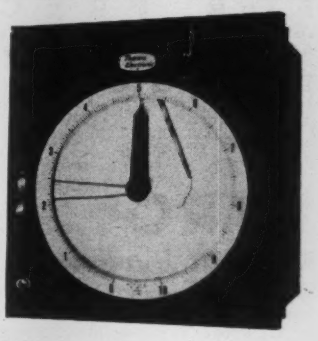
Gray Instrument
Instru Development Labs
Leeds & Northrup
M-H Rubicon Div
Pyrometer Instr Co
Technique Assocs
Thermo Electric
Westronics Inc
Williamson Development

PYROMETERS, Electrical Resistance

Aero Research Instr
Allenair Corp
Assembly Products Inc
Atkins Technical Inc
Bailey Meter Co
Barber-Colman
Beede Electrical Instr
Bristol Co
Daystrom/Weston
Edison Industries T A
Engelhard Industries
Epic Inc
Federal Pacific
Fielden Electronics
Foxboro Company
GE Apparatus Sales Div
General Controls
Hagan Chem & Controls
Howell Instrs
Huppert Co K H
Illinois Testing Labs
Instrument Lab Inc
J-B-T Instruments
Leeds & Northrup
Lewis Engrg Co
M-H Brown Instrs Div
M-H Rubicon Div
Manning Maxwell & Moore
McHugh & Son Raymond F
Norwood Controls
Nurnberg Scientific
Pyrometer Instr Co
R K L Controls
Rosemount Engrg Co
Ruge Associates
Simpson Electric Co
Swartwout Div
Taylor Instrument
Technique Asso
Temperature Engrg Corp
Thermo Electric
West Instrument Corp
Wheelco Indus Instrs

PYROMETERS

T-E has combined advanced design with quality performance in a wide variety of pyrometric instruments.



Recording Controller

Indicators
Self-balancing, potentiometer, bridge, millivoltmeter.

Controllers
Indicating, signalling, recording. Multi-Point.

Recorders
Circular chart indicating and controlling.

Other T-E Instruments
"AutoRef"—providing multiple circuit cold-junction compensation
Temperature Monitoring Systems

Write for Instrument Bulletin FF-1

MINIMITE

PORTABLE INDICATOR
Null Balance, Potentiometer Type

Thermo Electric
STD. ADJ.
LOW
HIGH
STD.
LOCK
OPERATE
MiniMite
RANGE

This compact unit weighs under 4 lbs.—yet it has a 23½ inch double range scale. It can measure temperatures directly, when connected to a thermocouple or calibrate other potentiometer or millivoltmeter-type instruments. Available scales cover temperatures from —300°F. to +3200°F. for all standard T/C materials; millivolt ranges from 0 to 62. Accurate to ¼ of 1% of scale range.

Write for Bulletin 64-FF

Thermo Electric *Temperature Measuring Systems and Components*
Co., Inc., Saddle Brook, N.J.
In Canada: THERMO ELECTRIC (Canada) LTD., Brampton, Ont.

CIRCLE 92 ON READER-SERVICE CARD

PYRO

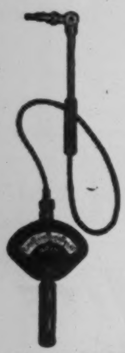
INSTRUMENTS FOR PRECISION TEMPERATURE MEASUREMENTS

PYRO

Optical Pyrometer

Determines temperatures of minute spots, fast-moving objects and smallest streams—at a glance! No correction charts or accessories needed. Easy to use—weighs only 3 lbs. Special types available to show true spout and pouring temperatures of molten ferrous metal measured in open. Five stock ranges from 1400° F. to 7700° F.

Write for FREE Catalog No. 85.



THE IMPROVED PYRO

Surface Pyrometer

The ideal instrument for all plant and laboratory surface and sub-surface temperature measurements. Available with large selection of thermocouples and extension arms for all jobs. Designed for ruggedness and accuracy . . . it features automatic cold end compensation, large 4¾" direct reading dial and shock, moisture and dust-proofed shielded steel housing. 5 stock ranges 0-300°F. to 0-1200°F.

Ask for catalog No. 168.

PYRO

Radiation Pyrometer

Tells spot temperatures instantly in heat-treating furnaces, kilns forgings and fire boxes. No thermocouples, lead wires or accessories needed! Temperature indicated on direct reading dial at a press of the button. Any operator can use it. Two double-ranges from 1000° F. to 3400° F.

Write for FREE Catalog No. 100.

PYRO

Immersion Pyrometer

The Pyro Immersion Pyrometer is shock proof, moisture proof, dust proof, immune to magnetic influences. Shielded steel housing. Instantly interchangeable thermocouples without adjustment or recalibration. Large 4" scale. Equipped with exclusive Lock Swivel. Ranges 0-1000 to 0-2500 F.

Get FREE Catalogue No. 155.

The Pyrometer Instrument Co.

Bergenfield 12, New Jersey

Manufacturers of PYRO Optical, MICRO-OPTICAL, SURFACE, RADIATION, IMMERSION and INDICATING PYROMETERS for over 25 years. Catalogs on request.

CIRCLE 93 ON READER-SERVICE CARD

PYROMETERS, Expansion

Beede Electrical Instr
Burling Instrument
Bristol Co
Hagan Chem & Controls
Nurnberg Scientific
Owens-Illinois Glass Co
Scientific Instrument

PYROMETERS, Millivoltmetric

Assembly Products Inc
Atlantic Pyrometers Inc
Barber-Colman
Beede Electrical Instr
Bristol Co
Curtiss Wright
Daystrom/Weston
Edmund Scientific Co
Epic Inc
Federal Pacific
GE Apparatus Sales Div
General Controls
Hagan Chem & Controls
Hays Corporation
Howell Instrument Co
Huppert Co K H
Illinois Testing Labs
Leeds & Northrup
Lewis Engrg Co
M-H Brown Instrs Div
M-H Fall River Div
M-H Rubicon Div
Magnetic Instr Co
Mastercraft Instr Co
McHugh & Son Raymond F
Meters Inc
Nurnberg Scientific
Pyrometer Instr Co
Rescon Electronics
Royco Instruments
Sensitive Research Instr
Simpson Electric Co
Smith Inc Arthur F
Swartwout Div
Temperature Engrg Corp
Thermo Electric
Thermolyne Corp
Wacline Inc
West Instrument Corp
Westronics Inc
Wheelco Indus Instrs
Winslow Electronics Inc

PYROMETERS, Optical

Atlantic Pyrometers Inc
Avco Corp
Block Associates
Epic Inc
Instr Development Labs
Leeds & Northrup
Mason Instr Co
Nurnberg Scientific
Pyrometer Instr Co
Servo Corporation
Spectra Electronics
Testing Machines Inc
Williamson Development

PYROMETERS, Potentiometric

Assembly Product Inc
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Barber-Colman
Bristol Co
Daystrom/Weston
Edmund Scientific Co
Fielden Electronics
Foxboro Company
GE Apparatus Sales Div
General Controls
Gray Instrument
Hagan Chem & Controls
Hays Corporation
Howell Instrument Co
Huppert Co, K H
Instrument Lab Inc
Leeds & Northrup
Lewis Engrg Co
M-H Brown Instrs Div
M-H Rubicon Div
Owens-Illinois Glass Co
Pyrometer Instr Co
Sensitive Research Instr
Spectra Electronics
Swartwout Div
Taylor Instrument
Technique Associates
Thermo Electric
Thermolyne Corp
West Instrument Corp
Westronics Inc
Wheelco Indus Instrs
Winslow Company Inc

PYROMETERS, Radiation, Indicating, Recording and/or Controlling

Assembly Products Inc
Atlantic Pyrometers Inc
Bailey Meter Co
Barber-Colman
Barnes Engineering
Block Associates
Bristol Co
Curtiss Wright
Electronic Control
Epic Inc
GE Apparatus Sales Div
Hays Corp
Illinois Testing Labs
Instru Development Labs
Instrument Lab Inc
Leeds & Northrup
M-H Brown Instrs Div
M-H Fall River Div
Mason Instr Co
Owens-Illinois Glass Co
Perkin-Elmer Corp
Pyrometer Instr Co
Radiation Electronics
Royco Instruments Inc
Servo Corporation
Shaw Instr Corp
Simpson Electric
Spectra Electronics
Technique Associates

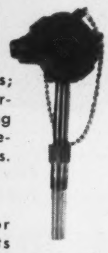
BAILEY METER

PYROMETERS

RADIATION

Measures intensity of radiation from hot objects and, in conjunction with an a-c electrical receiver, converts radiation measurements into temperature measurements. For temperatures up to 4000F with standard ranges of 1000F-2000F, 1000F-2500F, and 1000F-3000F. Request Spec E51-4 for details.

RESISTANCE THERMOMETER



Sealed RTD for temperatures from −400F to +1200F. Min range span: 50F for single point and averaging measurements; 20F for temperature difference measurements. Sensing element is platinum wire. Request Spec E51-5 for details.

THERMOCOUPLE

Swaged TC primarily for temperature measurements above 950F. Provides fast speed of response. Iron-Constantan and Chromel-Alumel thermocouples available. Used with screwed or welded protecting well or inserted directly into line. Request Spec E51-8 for details.

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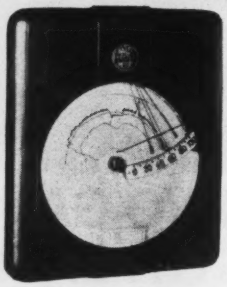
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 94 ON READER-SERVICE CARD

BAILEY METER

RECORDERS

AND PLUG-IN MODULES



Receiver - Recorder - Controller for use with pneumatic and electric transmission and/or mechanical measuring systems. Up to 4 receivers or 2 receivers and 2 flow integrators may be combined in the same case. Sealed capillary-action inking system provides clear, continuous, chart records without "poisoning". Interchangeable plug-in modules provide application flexibility.

Plug-in modules include: A-C or D-C Electronic Receivers; Pneumatic Receivers or Retransmitters; **PILOTROL** Controller; Program Controllers; Electric Retransmitters; Integrators; Running Time Recorders; Pressure Elements; Thermal System for temperature measurement. Request Spec E12-5 for details.

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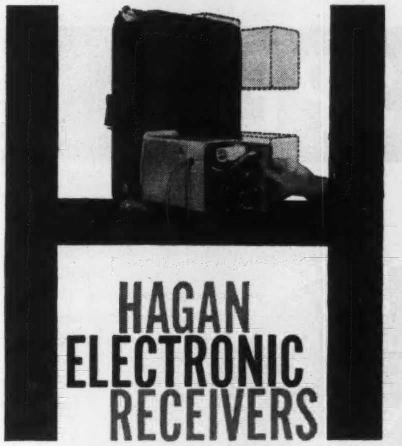
CIRCLE 95 ON READER-SERVICE CARD

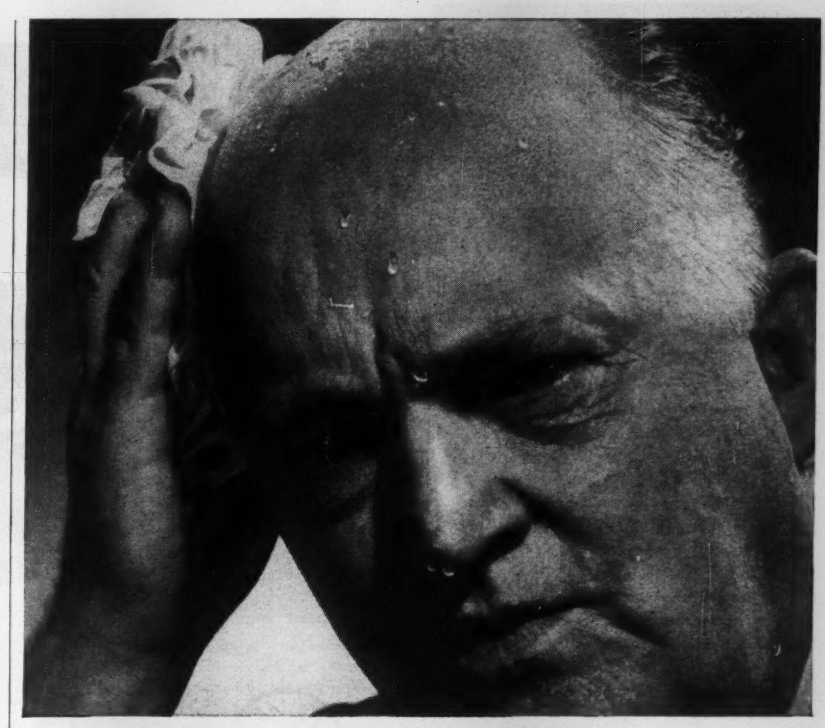

HAGAN ELECTRONIC RECEIVERS

For remote recording and/or control of temperatures, or the telemetering of flows, levels and pressures, the Hagan PowrLog instruments offer:

- Thermocouple or Resistance Bulb temperature measurements.
- Unique amplifier used for *all* types of measurements.
- Plug-in input boxes for each application.
- Fast and accurate, up to four variables may be recorded on one chart.

HAGAN CHEMICALS & CONTROLS, INC.
DIVISIONS: CALGON COMPANY, HALL LABORATORIES
HAGAN BUILDING, PITTSBURGH 30, PA.
In Canada: Hagan Corporation (Canada) Limited, Toronto
European Division: Via Flumendosa No. 13, Milano, Italy

CIRCLE 96 ON READER-SERVICE CARD


DON'T GET IN A **SWEAT** ABOUT **TEMPERATURE** CONTROL... **standardize on Bristol pyrometer supplies and solve the problem, once and for all.**

Everyone knows how interrupted pyrometer service can cut production, increase costs, impair product quality and whittle away at profits. Good way to minimize or stop these troubles: Lay in a supply of Bristol's thermocouples, protection tubes, radiation-unit accessories, refractory insulators, mounting fixtures, thermocouple extension wire, switches, and ink. They're available in sizes and types to fit all standard installations.

The outstanding quality and superlative reliability of Bristol pyrometer accessories is the product of more than 70 years of instrument building, 55 years of industrial pyrometry.

Write for complete data on Bristol pyrometer accessories today. The Bristol Company, 130 Bristol Road, Waterbury 20, Conn. O.12

BRISTOL ...for improved production through measurement and control
AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS
CIRCLE 97 ON READER-SERVICE CARD

Testing Machines Inc
Tipptronic Inc
Warner & Swasey Co
West Instrument Corp
Westronics Inc
Wheelco Indus Instrs
Williamson Development

PYROMETERS, Thermoelectric, Indicating, Recording and/or Controlling

Assembly Products Inc
Atlantic Pyrometers Inc
Barber-Colman
Barnes Engineering
Bristol Co
Consolidated Airborne
Daystrom/Weston
Edison Industries T A
Edmund Scientific Co
Engelhard Industries
Epic Inc
Federal Pacific
GE Apparatus Sales Div
General Controls
Gordon Co Claud S
Hagan Chem & Controls
Hays Corporation
Howell Instrument Co
Huppert Co K H
Illinois Testing Labs
J-B-T Instruments
Leeds & Northrup
Lewis Engrg Co
M-H Boston Div
M-H Brown Instrs Div
M-H Fall River Div
M-H Industrial Controls
M-H Rubicon Div
Magnetic Instr Co
Manning Maxwell & Moore
McHugh & Son Raymond F
Meters Inc
Natl Electronics (Wyo)
Nurnberg Scientific
Pacific Scientific
Pacific Transducer Corp
Pyro Service Co
Pyrometer Instr Co
Rescon Electronics
Richards Co, Arklay S
Royco Instruments Inc
Ruge Associates
Soiltest Inc
Sensitive Research Instr
Swartwout Div
Taylor Instrument
Thermo Electric
Thermolyne Corp
Tipptronic Inc
West Instrument Corp
Westronics Inc
Williamson Development
Winslow Electronics Inc

RECEIVER INDICATORS, CONTROLLERS, and RECORDERS, Electric Signal

Advanced Instr Corp
Aeronaut & Instr Div
Alden Electronic
American Optical Co
Applied Science Corp
Atkins Technical Inc
Automatic Control Co
Automatic Timing & Contls
Automation Electronics
B-I-F Industries
Bailey Meter Co
Barber-Colman
Bendix Montrose Div
Bristol Co
Bulova Research
Control Data Corp
Control Indicating Corp
Cramer Div
Daystrom/Weston
Daytronic Corp
Devar Systems
Di/An Controls
Diamond Power Specialty
Dynex Inc
Electric Tachometer
Electro Instruments
Electronic Controls Inc
Engineered Electronics
Epic Inc
Erie Pacific
Federal Pacific
Fielden Electronics
Fischer & Porter Co
Foxboro Company
GPE Controls
GE Apparatus Sales Div
Gulton Industries
Hagan Chem & Controls
Hathaway Instruments
Hays Corporation
Healy Ruff Co
Hersey Sparling Meter Co
Howell Instrs Inc
Infilco Inc
Instrol Inc
International Instrs
Kearfott Div
Keinath Instr Co
Larson Instrument
Leach Corporation
Leeds & Northrup
Litton Systems
M-H Brown Instrs Div
M-H Fall River Div
MacLaren & Co F B
Magnetic Instr Co
Manning Maxwell & Moore
Massa Div
Moore Products Co
Motorola Military Elx
North Electric Co
Norwood Controls
Oil Well Water Locating
Penn Meter Co
Poole Instrs Inc
Precision Mechanisms Corp
Princeton Div
Republic Flow Meters
Revere Corp of Amer
Riehle Testing
Ruge Associates
Sanborn Company
Scientific Instrument
Sensitive Research Instr
Shand and Jurs
Simplex Valve & Meter
Sonex Inc
Sparling Equipment Div
Streeter Amet Co
Stromberg Div
Swartwout Div
Taylor Instrument
Telectro Industries
Theta Instrument
Times Facsimile
Vernitron Corp
Warner & Swasey Co
WE-Instr & Control Sys
West Instrument
Westronics Inc
Wheelco Indus Instrs
Yarnall Waring

RECEIVER INDICATORS, CONTROLLERS, and RECORDERS, Pneumatic Signal

American Meter Co
Amer Standard Controls
Applied Science Corp
Automatic Control Co
Automatic Timing & Contls
B-I-F Industries
Bailey Meter Co
Barton Instrument
Bristol Co
Brush Instruments Div
Crosby-Ashton
Daystrom/Weston
Dickson Co
Ellison Draft Gage Co
Fischer & Porter Co
Fisher Governor Co
Foxboro Company
GE Apparatus Sales Div
Hagan Chem & Controls
Hays Corporation
Hersey Sparling Meter Co
Industrial Instrument
Infilco Inc
Johnson Service Co
Keinath Instr Co
Kieley & Mueller
M-H Brown Instrs Div
M-H Fall River Div
Manning Maxwell & Moore
Mason Neilan
Moore Products Co
OPW-Jordan
Penn Meter Co
Powers Regulator
Republic Flow Meters
Robertshaw-Fulton Contl
Scientific Instrument
Simplex Valve & Meter
Taylor Instrument
Telectro Industries
U S Gauge Div
Wheelco Indus Instrs

REFRIGERATION CONTROLLERS

Atkins Technical Inc
Automatic Timing & Contls
Bristol Co
Controls Co of Amer
Custom Comp Switches
Daystrom Weston
Eastern Industries
Forma Scientific
G E Apparatus Sales Div
GE Gen Purpose Ctl Dept
General Controls
Haydon Co A W
M-H Apparatus Con'ls
M-H Brown Instrs Div
Magnetrol Inc
Manning Maxwell & Moore
Partlow Corp
Relcon Inc
Scientific Instrument
Sirco Products Inc
Stratos Div
Taylor Instrument Cos
United Electric Controls

SCANNERS

Advanced Instr Corp
Aeroflex Corp
Airborne Instr Lab
Alden Electronic

SMOKE DENSITY AND TURBIDITY

Bailey Bolometer Transmitter electrically transmits measurements of relative smoke density, dust density, or turbidity to recording and/or indicating equipment at remote stations. Withstands ambient temperature up to 250F. Suitable for outdoor installation since units are sealed in weatherproof housing. A Bailey Running Time Recorder may be included in the same recorder case to record elapsed time of excessive smoke conditions. In addition to the measurement of smoke or dust density, the same basic elements are used in the Bailey Turbidity Transmitter which measures the percentage of solids suspended in a liquid. Request Specs E66-1 and E12-5 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 98 ON READER-SERVICE CARD

READ SPEED

CONVENIENTLY
with portable tachometers—rugged, economical instruments with either centrifugal or magnetic movements for measuring speeds from 100 to 50,000 RPM.

ACCURATELY
with chronometric speed indicators. 1/4 of 1% accuracy in measuring constant speeds. Single button start-stop and reset. Ranges 0 to 20,000 RPM.

RPM
x1000
8
2
7
3
6
4
5
BOULIN

SAFELY
with VISUTAC, self-powered visual stroboscope. No contact with dangerous machinery, no frictional drag. Unlimited speed range.

FOR O.E.M.
with stationary tachometers. Wide range of centrifugal or magnetic movements. Dial sizes and speed ranges to suit your requirements. Short run and rapid prototype delivery our specialty.

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9 FIRST STREET • PELHAM, N. Y.

WRITE FOR
the answer to your speed measuring problem. It is in one of Boulin's diversified lines of special purpose tachometers.

CIRCLE 99 ON READER-SERVICE CARD

Anadex Instruments Inc
Appalachian Electronic
Applied Science Corp
Assembly Products Inc
Automatic Control Co
Automation Electronics
Baird Atomic
Baldwin-Lima-Hamilton
Beckman/Berkeley Div
Block Associates
Borg-Warner Controls
Budd Co Inst Div
Bytrex Corporation
Control Equipment Corp
Cramer Div
Cubic Corp
Cunningham Son & Co
Cutler-Hammer
Data-Master Corp
Datex Corp
Designers for Industry
Diamond Power Specialty
Electric Eye Equip
Electro Instruments
Electro-Logic Corp
Electro-Mech
Electronic Controls Inc
Engis Equipment
Erie Pacific
Fielden Electronics
Foxboro Company
GPE Controls
GE Ind Control Dept
G E Specialty Control
Geotechnical Corp
Gilmore Industries
Gordon Enterprises
Guardian Electric
Hayes Inc, C I
Hughes Aircraft
Hydel Inc
Illinois Testing Labs
Image Instruments
Instrument Lab Ind
Kin Tel
Leeds & Northrup
Lundell & Co
Lynch Communication
M-H Brown Instrs Div
M-H Special Systems Div
MacLeod Inst Corp
Maryland Telecomm
Maxson Electronics Corp
Mercoid Corp
Non-Linear Systems
Norden Division
North Electric
Panellit
Parabam Division
Perkin-Elmer Corp
Philco Corp
Phillips & Co H A
Photobell
Photomechanisms
Powers Regulator
Radiation Electronics
San Diego Scientific
Scanivalve Co
Simmonds Precision Prod
Tally Register Corp
Telechrome Mfg Corp
Telectro Industries
Thermo Electric
Times Facsimile
United Aircraft Prods
U S Gauge Div
Victor Adding Machine
Vidar Corp
West Instrument Corp

SERVO SYSTEM ANALYZERS

Auto Control Labs
Automatic Timing & Contls
Automation Dev Corp
Boonshaft and Fuchs
Brush Instruments Div
Chadwick-Helmuth
Control Electronics
Di/An Laboratories
Electro Instruments
Hydel Inc
Industrial Control Co
Industrial Measurements
Kearfott Div
Land-Air Inc
Ling Electronics
Link Div
Moseley Co F L
Muirhead Instrs Inc
North Atlantic Indus
Pearce-Simpson Inc
Physical Sciences Corp
Polarad Electronics Corp
Rotiform Co
Servo Corporation
Spectrol Electronics
Theta Instrument

SERVO VALVES, Hydraulic and Electrohydraulic

Acme Industrial Co
Aero Supply Mfg
Aerotec Industries
Amer Meas & Control
Associated Valve Co
Atwood & Morrill Co
Automatic Timing & Contls
Bellows-Valvair
Bendix Utica Div
Cash Valve Mfg
CompuDyne Corp
Consol Controls
Control Data Corp
Control Technology
Defender Instrument
Eastern Industries
Electro-Mech
GPE Controls
General Controls
Granville-Phillips
Greer Hydraulics Inc
Hamilton Standard Div
Herion Inc
Hydra-Power Corp
Hydraulic Controls Co
Kearfott Div
Lear Inc
Leonard Inc Wallace O
Loe Engrg Co
MB Electronics
M-H Apparatus Contls
Manning Maxwell & Moore
Midwestern Instrs
Model Engrg
Moog Servocontrols
Muirhead Instr
North American Mfg
O K Machine & Tool
Oilgear Co
Parker Aircraft Co
Pegasus Labs
Pesco Products Div
Raytheon/Govt Mktg Div
Ronson Hydraulic Units
Rucker Co
Sanders Associates
Servotronics Inc
Standard Controls Inc
Sterling Precision
Syracuse Electronics
True-Flo Valve
United Aircraft Prods
United Control Systems
Vickers-A & E Center
Vinson Systems
Westinghouse Air Brake
Weston Hydraulics Ltd

SERVOMECHANISMS, including Servo Systems, Kits (see also Servomotors, also Clutches, and Gears—Cat. 8)

Advanced Research
Airborne Accessories
Airpax Electronics
American Electronics Inc
Amer Meas & Control
American Meter Co
Analogue Controls Inc
Andersen Labs
Angler Industries
Arma Division
Astromics Div
Atlas Precision Prods
Automatic Timing & Contls
Automation Dev Corp
Barnes Development Co
Beckman/Helipot Div
Belock Instrument
Bendix Montrose Div
Bergen Labs Inc
Bowmar Instrument
Brach Mfg Corp
Bulova Research
Carlton Controls
Carmody Corp
Cedar Engrg Div
Clary Corp
Concord Control Inc
Consolidated Airborne
Control Data Corp
Control Technology
Dalmotor Div
Datex Corp
Datran Electronics
Daystrom/Mil Elx
Del Electronics
DJECO
Dole Valve Co
Dorsett Electronics Inc
Dynametrics Corp
Dynamic Gear Co
Dynatronics Inc
Dynex Inc
Eastern Industries
EBEX
Edison Industries T A
Electric Eye Equip
Electric Tachometer
Electro-Autosizing
Electro Precision
Electrodynamic Instr
Electronic Controls Inc
Fairbanks-Morse
Farrand Controls
Federal Mfg & Engrg
Feedback Controls Inc
GE Apparatus Sales Div
GPE Controls
Gap Instrument
General Controls
General Dynamics/Elx
General Mills Inc
Giannini Controls Corp
Globe Industries
Hamilton Standard Div
Harowe Servo Controls
Hodge Controls Div
Hoover Electric Co
Humphrey Inc
Hydel Inc
Industrial Control Co
Insco Company
Instru-Lec Corp
Jordan Controls
Kavamil Co
Kearfott Div
Kidde Aero Space Div
Kinetic Instr Corp
Kollsman Instr Corp
Land-Air Inc
Librascope Div
Ling Electronics
Link Div
Litton Systems
M-H Brown Instrs Div
M-H Military Prods Grp
MacLaren & Co F B
MacLeod Inst Corp
Maryland Telecomm
Mast Development
Maxson Corp W L
Melcor Electronics Corp
Micro Gee Products
Midwestern Instrs
Milro Controls
Moog Servocontrols
Muirhead Instrs Inc
Natel Engrg Co
Niagara Frontier Div
Norden Division
Norwood Controls
Nuclear Materials & Equip
Oilgear Co
Oster Mfg John
Ovitron Corp
Pegasus Labs
Philco Corp
Photomechanisms
Physical Sciences Corp
Pic Design Corp
Power Controls Div
Precision Mechanisms
Radionics Inc
Reeves Instr Corp
Richardson Scale Co
Rockwell Engineering
Rotating Components
Rucker Co
Schaevitz Engineering
Servo-Dynamics Corp
Servo Systems Co
Servomechanisms Inc
Sierra Research Corp
Specialties Inc
Spectrol Electronics
Sterling Instrument Div
Strand Engrg Co
Syracuse Electronics
TRG Inc
Tapco Group
Telechrome Mfg Corp
Telectro Industries
Theta Instrument
Ultronix Inc
United Control Systems
United Shoe Machinery
Universal Match Corp
U S Gear Corp
Utechnics Inc
Vemaline Products
Vickers-A & E Center
Vinco Corp
Voi-Shan Electronics
Westamp Inc
Vogue Inst Corp
Weston Hydraulics Ltd
Western Design
Westronics Inc
Wintronics

SERVOMECHANISMS, Digital, including Digital Positioners

Abacus Inc
Airflyte Electronics
Airpax Electronics
American Meter Co
Amer Standard Controls
Andersen Labs
Astrosystems Inc
Auerbach Electronics
Automation Dev Corp
Bergen Labs Inc
Bowmar Instrument
Carlton Controls
Coleman Engrg
Concord Control Inc
Consol Controls
Control Data Corp
Control Electronics
Control Equipment Corp
Control Technology
Cox Instruments
Data Tech
Datex Corp
Datran Electronics
Daystrom/Control Sys
Daystrom/Mil Elx
DJECO
Dynametrics Corp
Dynatronics Inc
Dynex Inc
Electric Eye Equip
Electric Tachometer
Electro-Autosizing
Electrodynamic Instr
Electronic Controls Inc

When Using This Guide look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

Electronic System Dev
Engis Equipment
Exactel Instrument Co
Fairbanks-Morse
Farrand Controls
Feedback Controls Inc
Ford Instr
GE Apparatus Sales Div
G E Specialty Control
GEMCO Electric Co
Gemco Electric Co
General Controls
General Dynamics/Elx
Genesys Corp
Gerber Scientific Inst
Giannini Controls Corp
Gilmore Industries
Gyrex Corp
Hamilton Standard Div
Harowe Servo Controls
Hydel Inc
Hughes Aircraft
IMC Magnetics
Industrial Control Co
Intectron Inc
Jordan Controls
Kearfott Div
Kellogg Switchboard
Kinetic Instr Corp
Kollsman Instr Corp
Land-Air Inc
Librascope Div
Litton Systems
MacLaren & Co F B
MacLeod Inst Corp
Maryland Telecomm
Mast Development
Maxson Corp W L
Moseley Co F L
Niagara Frontier Div
Nuclear Materials & Equip
Pace Controls
Pegasus Labs
Performance Measurements
Philco Corp
Physical Sciences Corp
Power Controls Div
Revere Corp of Amer
Richardson Scale Co
Rotary Devices Corp
Servo-Dynamics Corp
Sierra Research Corp
Spectrol Electronics
Sterling Precision
Swartwout Div
Syracuse Electronics
Taller and Cooper Inc
Tally Register Corp
Tapco Group
Technitrol Engrg
Telechrome Mfg Corp
Teller Co
Theta Instrument
Trak Electronics
United Control Systems
United Sensor & Control
United Shoe Machinery
Varo Mfg Co
VecTrol Engrg
Warner & Swasey Co
Weston Hydraulics
Wintronics

SERVOMOTORS, Electric Motor and/or Solenoid

Airborne Accessories
Airesearch Mfg Co
American Electronics
Automation Dev Corp
Beckman/Helipot Div
Bekey Electric Div
Bendix Montrose Div
Bowmar Instrument
Buck Instrument
Cedar Engrg Div
Diehl Mfg Co
Dynex Inc
Eastern Air Devices
Edison Industries T A
Electric Indicator
Engelhard Industries
Ford Instr
GE Apparatus Sales Div
Giannini Controls Corp
Greenleaf Mfg Div
Harco Labs
Harowe Servo Controls
Hoover Electric Co
IMC Magnetics
Industrial Control Co
Jack & Heintz Inc
Jordan Controls
Kearfott Div
Kinetic Instr Corp
Land-Air Inc
Librascope Div
Link Div
M-H Brown Instrs Div
M-H Industrial Controls
Midwestern Instr
Muirhead Instrs
Norden Division
Rotating Components
Sangamo Electric Co
Summers Gyroscope
Superior Electric Co
Thermo Electric Co
Universal Match Corp
Vernitron Corp
Western Gear Corp
Weston Hydraulics Ltd
Wright Machinery Co

SERVOMOTORS, Hydraulic, Mechanical and Pneumatic

Acme Industrial Co
American Electronics Inc
Amer Meas & Control
Automation Dev Corp
Barber-Colman
Bellows-Valvair
Bowmar Instrument
Buffalo Hydraulics Div
Eastern Air Devies
Eastern Industries
GPE Controls
Hagan Chem & Controls
Hydra-Power Corp
Hydraulic Controls Co
IMC Magnetics
Kearfott Div
Lear Inc
M-H Apparatus Contls
M-H Military Prods Grp
Mason-Neilan
Midwestern Instrs
Modernair Corp
Muirhead Instrs Inc
Oilgear Co
Oster Mfg John
Pegasus Labs
Racine Hydra & Machy
Relcon Inc
Tapco Group
Universal Match Corp
Vickers-A & E Center
Weston Hydraulics Ltd
Westinghouse Air Brake

SIGHT FLOW BUBBLERS

Acme Industrial Co
Fischer & Porter Co
King Engrg
Meriam Instr Co
OPW-Jordan
Petrometer Corp
Trimount Instrument Div
Uehling Instrument

SMOKE DENSITY INDICATORS and/or RECORDERS

Automatic Timing & Contls
Autotron Inc
Bacharach Indus Instr
Bailey Meter Co
Bristol Co
Diamond Power Specialty
Dwyer Mfg Co
Electronic Control
Fielden Electronics
GE Apparatus Sales Div
G E Specialty Control
General Controls
Hagan Chem & Controls
Hays Corporation
Hoffman Electronics
Instr Development Labs
Leeds & Northrup
Mason Inst Co
Mine Safety Appliances
Phoenix Precision Instr
Photobell
Photomation Inc
Presin Co
Reliance Instr Div
Research Appliance Co
Rotiform Co
Standard Instrument
Wells Inds
Westronics Inc
Wheelco Indus Instrs
Worner Electronic Device

SPECIFIC GRAVITY CONTROLLERS, INDICATING AND RECORDERS

ARCCO Instr Co
Accuracy Scientific
Alfa-American Corp
American Meter Co
Askania-Werke
Automatic Timing & Contls
Automation Products
Bailey Meter Co
Barton Instrument
Beckman/Sci & Proc Div
Bowmar Instrument
Bristol Co
Brooks Instrument
Buffalo Meter Co
Co-Engineering Co
Dwyer Mfg Co
Exact Weight Scale
Federal Pacific
Fischer & Porter Co
Fisher Governor Co
Foxboro Company
General Dynamics/Elx
Hagan Chem & Controls
Hallikainen Instrs
Howell Instrs Inc
Impact-O-Graph Corp
Industrial Nucleonics
Instruments Inc
Kieley & Mueller
King Engrg
M-H Brown Instrs Div
Meriam Instr Co
Moore Products Co
Norwood Controls
Nuclear Corp of Amer
Nuclear Materials & Equip
Ohmart Corp
Permutit Co
Petrometer Corp
Poole Instrs Inc
Potter Aeronautical
Precision Thermometer
Radionics Inc
Ranarex Div
Schutte and Koerting
Taylor Instrument Cos
Tracerlab Inc
Wallace & Tiernan
Westronics Inc

SPEED INDICATORS, RECORDERS, and REGULATORS, including Speed Switches

Actuator Prods Corp
Airpax Electronics
Allen-Bradley
American Meter Co
Amer Standard Controls
Annin Company
Annis Co R B
Automatic Control Co
Automatic Timing & Contls
Automation Dev Corp
Bailey Meter Co
Barber-Colman
Bergen Labs Inc
Biddle Co James G
Bin-Dicator Co
Boulin Instrument
Bowmar Instrument
Bristol Co
Cadillac Rectifier
Consolidated Diesel
Control Technology
Cox Instruments
Custom Comp Switches
Daystrom/Weston
Detroit Controls
Electric Regulator
Electric Tachometer
Electro-Mechano Co
Electro Products Labs
Electronic Controls Inc
Engler Instr
Epic Inc
Erie Pacific
Esterline-Angus
Euclid Electric & Mfg
Federal Pacific
Fidelity Instrument Corp
Flo-Tronics Inc
Foxboro Company
General Dynamics/Elx
GE Apparatus Sales Div
GE Specialty Control
General Radio
Gilmore Industries
Hagan Chem & Controls
Hamilton Standard Div
Hanson-Gorrill-Brian
Hays Corporation
Hewlett-Packard
Howell Instrs Inc
Industrial Control Co
Jordan Controls
Kahn and Co Inc
Kearfott Div
Kernco Instruments Co
King-Seeley Div
Leeds & Northrup
Liquidometer
M-H Apparatus Contls
M-H Brown Instrs Div
Machinery Electrification
McLaren & Co F B
Marx Co Clarence J
Meters Inc
Metron Instrument
Micrometrical Mfg
Natl Electronics (Wyo)
Newark Controls
North Atlantic Indus
Norwood Controls
Performance Measurements
Photobell Co
Pioneer Magnetics
Pitometer Log Corp
Potter Aeronautical
Power Controls Div
Sanborn Co
Scherr-Tumico
Servonic Instruments
Servo-Tek Products
Sierra Research Corp
Snychro-Start
Specialties Inc
Standard Instrument
Sticht Co Herman
Sterling Precision
Stratos Div
Syracuse Electronics
Tapco Group
Taylor Instrument
Thermo Electric
Tracktest Equipment
Universal Match
Uniwave Inc
Varo Mfg Co
Vectrol Engrg
Vickers Electric Prods Div
Vidar Corp
WE-Instr & Control Sys
Wacline Inc
Waugh Engineering Co
Westberg Mfg Co
Westinghouse Electric
Westronics Inc
Wheelco Indus Instrs
Zernickow Co

SPEED REDUCERS and SPEED INCREASERS

Actuator Prods Corp
Airborne Accessories
Allis-Chalmers
Annin Company
Auto Control Labs
Automatic Timing & Contls
Bowmar Instrument
Breeze Corporation
Cleveland Worm & Gear
Consolidated Diesel
Dalmotor Div
Dynex Inc
Eastern Air Devices
FAE Instrument
Feedback Controls Inc
GE Apparatus Sales Div
General Radio
Hamilton Standard Div
Hoover Electric Co
Insco Company
Instru-Lec Corp
Jan Hardware Mfg Co
Jones Motrola
Kearfott Div
Kinetic Instr Corp
Link Div
Lovejoy Flex Coupling

ARCCO-Anubis
LIQUID GRAVITOMETER
For PIPELINES, REFINERIES, GASOLINE PLANTS

NOW 19 MODELS

MODEL R

Wherever the specific gravity of liquid products or processing fluids is an important factor ARCCO-Anubis Liquid Gravitometers will render accurate recordings of continuous flow and spot checks of samples under varying conditions of temperature and pressure. Foreign liquids and gasses are automatically purged. Changes in the specific gravity of the sample are recorded almost instantly. High pressure and high viscosity liquids are handled with ease. Charts graduated for specific gravity are available in over 100 ranges. Charts for Degrees A.P.I. are available in over 30 different ranges. Arcco Liquid Gravitometers are made for recording, controlling, indicating, transmitting and various combinations of these functions. Specal charts when required can be furnished at slight additional cost.

ARCCO Send For Bulletin No. 111-R4
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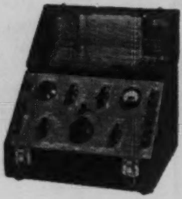

Strain Gage Instrumentation

BAM-1
Bridge Amplifier and Meter
Very convenient general purpose box. Static readings on meter. Dynamic readings on dc 'scope. Transistor dc amplifier with excellent low noise and drift. **Bulletin #6.**

BA-12
Bridge Amplifier
Accurate monitoring of fatigue tests. "Dynamic Null Balance" gives accuracy within 1% on steady dynamic signals. Used with any cathode-ray oscilloscope. **Bulletin #5.**

B-1 Bridge
Bridge box for powering and calibrating all configurations of SR-4 type strain gages drives 10 millivolt sensitivity recorders such as strip chart, dial indicators and sensitive cathode-ray oscilloscopes. The B-1 supplies DC to the strain gage bridge. It is powered from 115V 60 cycle line and gives stable and dependable operation from DC to 50,000 cps. **Bulletin #13.**

BSG-6 Switch and Balance, Bulletin #14.

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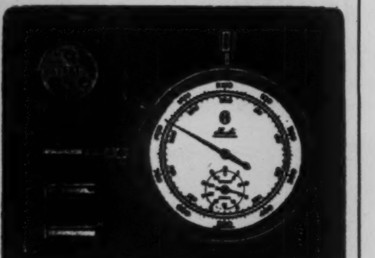

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DURABILITY:
over 30 years
ACCURACY:
¼ of 1% of true speed through life

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or 0- 6,000 f.p.m.
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or 0- 600 f.p.m.

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Spindle incl.
Weight 7¾ oz.
ready for test

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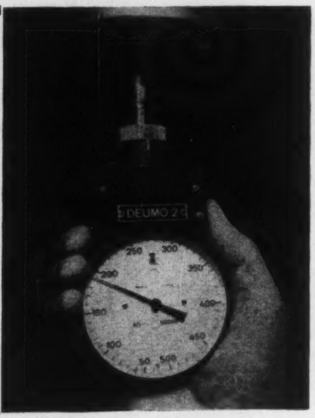

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$59.00
available in 3 ranges

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Miniature Eddy Current Tachometers
1" dia 2½" long—Accuracy 3%
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Bowmar Instrument
Electric Tachometer
Hamilton Standard Div
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Stratos Div
United Control Systems
U S Electrical Motors
Uniwave Inc
Varo Mfg Co

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Bristol Co
Cox Instruments
Daniel Orifice Fitting
Foxboro Company
Hersey Sparling Meter Co
M-H Brown Instrs Div
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Republic Flow Meters
Robinson Orifice
Simplex Valve & Meter
Sparling Equipment Div
Taylor Instrument Cos

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Baldwin-Lima-Hamilton
Budd Co Inst Div
Bytrex Corp
Century Elx & Insts
Clark Electronic Labs
Columbia Research Labs
Consol Electrodynamics
Daytronic Corp
Dillon & Co W C
Dynamic Instr
Fairchild Controls
Foxboro Company
G E Apparatus Sales Div
Gilmore Industries
Gulton Industries
High Temperature Instrs
Korfund Co
Kulite-Bytrex Corp
Kulite Semiconductor
Lockheed Electronics
Mefco Sales & Service
Metzger & Son F F
Micro Systems
Micro-Test Inc
Microdot Inc
Physical Sciences Corp
Revere Corp of Amer
Statham Instruments
Stavid Div
Superior Carbon Prod
Tinius Olsen Testing
U S Nuclear

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Budd Co Inst Div
Bytrex Corp
GE Apparatus Sales Div
Gilmore Industries
Research Inc
Sirco Products Inc
Tinius Olsen Testing
United Control Systems
Westronics Inc

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Brush Instruments Div
Budd Co Inst Div
Datex Corp
Daytronic Corp
Electro Instruments
Electro-Logic Corp
Electro-Mech
Ellis Associates
Geotechnical Corp
Gilmore Industries
Keinath Instr Co
Moseley Co F L
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Budd Co Inst Div
Bytrex Corp
Century Elx & Insts
Consol Electrodynamics
Consolidated Systems
Datran Electronics
Daytronic Corp
Dietert Co
Ellis Associates
Gilmore Industries
Hewlett-Packard
Korfund Co
Magnaflux Corp
Moseley Co F L
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Performance Measurements
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Physical Sciences Corp
Polyphase Instr Co
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Chadwick-Helmuth
Communication Meas Lab
Davenport Mfg
Edmund Scientific Co
Engis Equipment
Epic Inc
General Radio
Geotechnical Corp
Hickok Electrical Instr
International Res Dev
Kemlite Labs
Kernco Instruments Co
Kingston Industries
Sanders Laboratories
Shapiro & Edwards
Slaughter Co
Sticht Co Herman

TACHOGRAPHS

Automatic Timing & Contls
Biddle Co James G
Electric Tachometer
Engler Instr
Jones Motrola Corp
Sanborn Company
Sangamo Electric Co
Sticht Co Herman
Zernickow Co

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Amthor Testing
Associated Research
Automatic Timing & Contls
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Boulin Instrument
Durant Mfg
Electric Autolite
Epic Inc
Giannini Controls Corp
Jones Motorola Corp
Kernco Instruments Co
Scherr-Tumico
Small Motors Inc
Sticht Co Herman
Zernickow Co

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Associated Research
Automatic Timing & Contls
Biddle Co James G
Boulin Instrument
Electric Tachometer
Erie Pacific
Giannini Controls Corp
Hasler Tel
Kernco Instruments Co
Martindale Electric Co
Marx Co Clarence J
Presin Co
Standard Electric Time
Sticht Co Herman
Technical Oil Tool Corp
Waltham Precision Instr
Zernickow Co

TACHOMETERS, Electric, Electronic, and Electromagnetic

A R & T Electronics Inc
Airborne Instr Lab
Airpax Electronics
Amer Standard Controls
Anadex Instruments Inc
Assembly Products Inc
Automatic Timing & Contls
Avionic Supply
Beckman/Berkeley Div
Bendix Montrose Div
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Bill Jack Scientific
Boulin Instrument
Bristol Co
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Control Data Corp
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Dalmotor Div
Datascan Inc

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MODELS WITH ONE, TWO, THREE, FIVE OR SIX
RANGES FOR ALL SPEEDS 0-100,000 RPM
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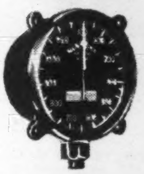
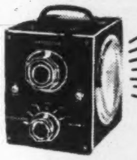
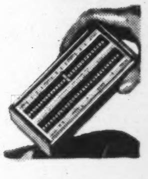

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Range 60-15,000 RPM
"Industry's Seeing Eye"
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Measure speed by touch. Many different ranges from 600-60,000 RPM. *Bulletin 770*

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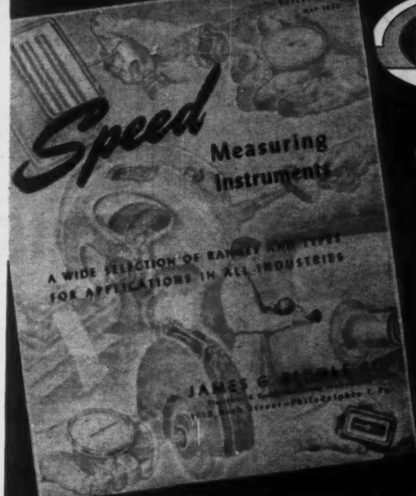
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Measuring Instruments
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Erie Pacific
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Muirhead Instr
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Norwood Controls
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Servo-Tek Products
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Simpson Electric
Stewart-Warner Corp
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Sun Electric Corp
Sunshine Scientific
Tapco Group
Transistor Specialties
Twin City Testing Corp
United Mineral & Chem
Uniwave Inc
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Vernitron Corp
Vidar Corp
WE-Instr & Control Sys
WacLine Inc
Waugh Engineering Co
Westberg Mfg
Westinghouse Electric
Yokogawa Electric Works

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Associated Research
Automatic Timing & Contls
Biddle Co James G
Cox Instruments
Electro-Mechano Co
Fox Valley Instr
Foxboro Company
General Meters
Giannini Controls Corp
J-B-T Instruments
Jones Motrola Corp
Marx Co Clarence J
Performance Measurements
Ram Meter Inc
Sticht Co Herman
Sun Electric Corp
Varo Mfg Co
Westberg Mfg
Zernickow Co

TACHOMETERS, Recording

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Amthor Testing
Automatic Timing & Contls
Bailey Meter Co
Barber-Colman
Biddle Co James G
Bristol Co
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Gilmore Industries
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Korfund Co
Leeds & Northrup
M-H Brown Instrs Div
Metron Instrument
Natel Engrg Co
Norwood Controls
Potter Aeronautical
Sanborn Company
Sticht Co Herman
Thermo Electric
WacLine Inc
Waugh Engineering Co
Westberg Mfg Co
Westinghouse Electric
Westronics Inc
Wheelco Indus Instrs
Zernickow Co

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Assembly Products Inc
Automatic Timing & Contls
Beckman/Berkeley Div
Bill Jack Scientific
Bristol Co
California Controls
Computer Measurements
Dalmotor Div
Daystrom/Weston
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Dynapar Corp
Electric Tachometer
Electro-Mechano Co
Electro Products Labs
Esterline Angus
FAE Instrument
Gilmore Industries
Jones Motrola Corp
Kahn & Co
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Machinery Electrification
Marx Co Clarence J
Metron Instrument
Muirhead Instrs
Murphy Mfg Inc
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Norwood Controls
Pioneer Magnetics
Pitometer Log Corp
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Rockwell Engineering Co
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Standard Electric Time
Sticht Co Herman
Tapco Group
Varo Mfg Co
WacLine Inc
Waugh Engineering Co
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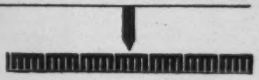

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For Precise and Rapid Measurements of

SHAFT SPEEDS
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- **Magnetic Design** Steady readings accurate to ±0.5% at any part of any scale.
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- **Hold Button** "memorizes" reading when desired.

Complete Service Facilities *Send for Details and Literature*

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Applications include continuous monitoring of helicopter blades, propellers shafts, turbine physical parameters.

Three channel, FM/FM solid-state transmitter measures only 1¼" x 1¼" x 6". Complete system includes multi-channel receiver and recorder.

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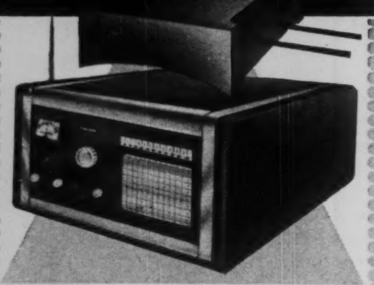

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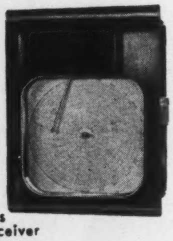
for remote measurement, indicating, recording and automatic control

Bristol's Metameter Telemeters measure pressure, flow, temperature, liquid level, motion and gate position, voltage, current, power, totalized power load, and reactive volt-amperes at remote points from a few feet to many miles away. Very wide choice of transmitting media: carrier channel, telephone, private wires, radio beam (microwave, VHF, and UHF), multiplexing and selective calling—or any convenient circuit you may select. Many electric and electronic instruments (round- and strip-chart) available. Write for Bulletin M1710.



Series 500 Receiver

BRISTOL COMPANY

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Slaughter Co
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Korfund Co
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American Meter
Applied Electronics
Applied Science Corp
Arnoux Corp
Automatic Control Co
Automation Dev Corp
Automation Dynamics
Automation Electronics
Automatic Electric
B-I-F Industries
Bailey Meter Co
Baird-Atomic
Belfort Instrument
Belock Instrument
Bendix-Friez Instr
Bendix-Pacific
Borg-Warner Controls
Bristol Co
Brooks Instrument
Bulova Research
Calif Computer Prods
Consol Electrodynamics
Consolidated Systems
Century Elx & Insts
Control Data Corp
Control Corp
Control Equipment Corp
Control Panel Corp
Cooper Development
Cunningham Son & Co
Curtiss Wright IMI
Data-Master Corp
Daystrom Control Sys
Daystrom/Mil Elx
Daystrom/Wiancko
Designers for Industry
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Femco Inc
Fielden Electronics
Fischer & Porter Co
Foxboro Company
GPE Controls
Gates Radio Co
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Geotechnical Corp
Guardian Electric
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Lel Inc
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Lind Instr
Litton Systems
Lundell & Co
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Magnasync Mfg Co
Manning Maxwell & Moore
Maryland Telecomm
Micro Gee Products
Midwestern Instrs
Monitor Systems Inc
Moore Associates
Moore Products Co
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Mycalex Corp of Amer
Nacimco Products
Natel Engrg Co
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North Electric Co
Northeast Electronics
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Oil Well Water Locating
Orbitran Co
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Pearce-Simpson Inc
Penn Meter Co
Philco Corp
Probescope Co
R C A Corp
Radiaphone Co
Radiation Inc
Radio Frequency Labs
Reliance Instr Mfg
Republic Flow Meters
Rotary Devices Corp
Sage Instruments
Sanders Laboratories
Sangamo Electric Co
Servo Corporation
Servomechanism Inc
Shand and Jurs
Sierra Electronic Corp
Sierra Research Corp
Simmonds Precision Prod
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Sirco Products Inc
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Sonex Inc
Sparling Equipment Div
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Statham Instruments
Stavid Div
Strand Engrg Co
Swartwout Div
Tapco Div
Tele-Dynamics Div
Telechrome Mfg Corp
Telectro Industries
Telemetering Corp
Union Switch & Signal
United Control Systems
United Electrodynamics
United Engineers Inc
Vapor Recovery Systems
Vidar Corp
Vitro Electronics
WE-Instr & Control Sys
WE-Nuclear & Power
Warner & Swasey Co
Warren Mfg Co
Westinghouse Electric
Wheelco Indus Instrs

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Applied Electronics
Automatic Control Co
Automation Dynamics
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Bailey Meter Co
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Dorsee Mfg Co
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Hagan Chem & Controls
Hersey Sparling Meter Co
Instrument Lab Inc
Land-Air Inc
M-H Brown Instrs Div
Mason Neilan
Moore Products Co
Mycalex Corp of Amer
Powers Regulator
Radiaphone Co
Sangamo Electric Co
Simplex Valve & Meter
Telectro Industries
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Abacus Inc
Adams-Russell Co Inc
Adler Electronics
Advanced Electronics
Airborne Instr Lab
Aircraft Armaments
Allied Research
Alpha Tech Pro
American Bosch Arma
American Meter
Applied Electronics
Applied Science Corp
Atlantic Research
Automatic Electric
Automation Dev Corp
Automation Dynamics
B-I-F Industries
Bendix-Pacific
Budd Lewyt
Borg-Warner Controls
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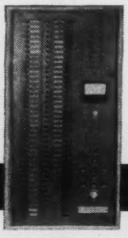

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Scans and monitors equipment temperatures from thermocouple inputs, and will also accommodate inputs from flow, pressure etc. Rack mounted, the Hagan Kybernetes Indicator Monitor has these features:

- Continuous alarm scanning at the rate of 5 points per second.
- Individual setting of high and/or low alarm points.
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- Unaffected by variations in thermocouple lead lengths.
- Operational check for all circuits.

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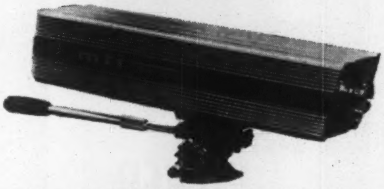
CIRCLE 121 ON READER-SERVICE CARD

mti ORTH I

CLOSED CIRCUIT TELEVISION SYSTEM

Complete with Image Orthicon Camera, Control Unit and Master Monitor



The new MTI Orth I CCTV system provides low cost, lightweight, portable equipment for a wide range of applications. It is ideally suited for underwater work, nighttime viewing, education and training, meetings and conferences, data handling, and other observation methods covering a broad category of business and industry.

★ **EXCELLENT RESOLUTION AT LOW LIGHT LEVELS**
800-line resolution at 1 foot-candle
200-line resolution at .0001 foot-candle

★ **EASY TO OPERATE**
Only 2 operating controls
Up to 1,000 ft. between camera and control unit
Remotely-controlled 2 to 1 zoom (standard)

★ **EASY TO SERVICE**
Completely modular in construction

For complete details and prices, write:

MARYLAND TELECOMMUNICATIONS, INC.
Video Instrumentation
10 Winters Lane - Baltimore 28, Maryland

Manufacturers of Non-Contact Measuring Devices, Video Control Computers, Vidicon Cameras, Electronic Micrometers, and other video-actuated devices.

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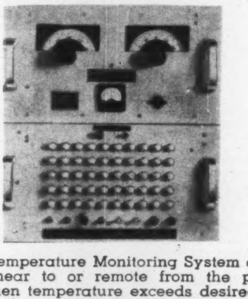
TEMPERATURE MONITORING SYSTEM

Signals Dangerous Temperatures From Many Points



T-E's Temperature Monitoring System can be located near to or remote from the process area. When temperature exceeds desired, preset limit, danger is indicated by a red light, which remains red until the adverse temperature is corrected, or by an alarm which remains on until a silencing button is pressed.

• Monitors up to several hundred points in one system • Available with single or multiple set points • Monitors temperatures from —320°F. to +3000°F. • Can also monitor other variables • Functions with thermocouples or resistance bulbs • Signals may be transferred to indicators or recorders • Continuous scanning

Write for bulletin 72-FF

Thermo Electric *Temperature Measuring Systems and Components*
Co., Inc., Saddle Brook, N.J.
In Canada: THERMO ELECTRIC (Canada) LTD., Brampton, Ont.

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Barber-Colman
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Daystrom/Weston
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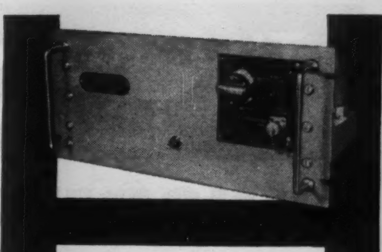

HAGAN CPM-1 TEMPERATURE CONTROLLER

For the control of temperatures where high precision is a must, the CPM-1 Controller uses Hagan PowrAmp for initial amplification, with magnetic amplifiers for summing and integration. A saturable reactor forms the final control element, and proportional band, reset and rate action are available.

For all types of electric heating applications, the Hagan CPM-1 Controller offers precision digital set point and stepless fractional degree regulation. The CPM-1 will handle up to 330 kva.

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DIVISIONS: CALGON COMPANY, HALL LABORATORIES
HAGAN BUILDING, PITTSBURGH 30, PA.
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Burling Temperature Controls

Model F-1C Temperature Control

All "F" Series Burling Temperature Controls are designed for any installation requiring a locally-mounted, non-indicating type control. Combine a differential expansion type sensing element and sturdy cast aluminum housing to provide an extremely reliable and durable heat-sensitive instrument for all temperatures up to 2000°F. Model F-2C & F-3C have multiple switches and may be used for:

- **Combination Control and Alarm**
- **Alarm and Shut-Down**
- **Split Load Control**
- **Any Action at Two or Three Temperatures**

Other instruments available for electric or pneumatic operation up to 2000° F.

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16 River Road • Chatham, N. J.

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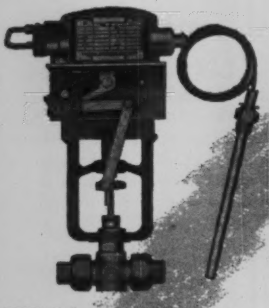
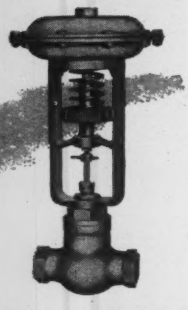
The Rugged, Efficient, Thrifty Line of

"WORK HORSE" CONTROLS



1110 FultroMatic . . . complete temperature control system in one air-actuated package: temperature controller, pneumatic control valve, positive valve positioner.

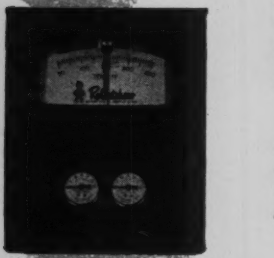
1004 Series . . . closest temperature control in the self-ops field. Available in 40° adjustment ranges from −35°F to +425°F. (Plus 8 other styles.)



CV Series . . . diaphragm- or bellows-actuated control valves for precise control of fluid flow in commercial or industrial applications. Pneumatic or hydraulic operation.

They look rugged, they *are* rugged . . . yet every Robertshaw control is designed for *performance* first. Plant engineers in leading industries continually specify Robertshaw for work-horse controls that stay on the job year after year with higher efficiency, lower maintenance.

Get the facts on dependable, moderate priced Robertshaw controls for your particular field. Ask for catalog A-TL.



1150 Series . . . an indicating pneumatic controller with greatest field serviceability; proportional action (.5% to 200%), automatic reset, fully compensated thermal system.

1135 FultroPilot . . . for positive remote control through air signal to control valve, damper actuator, etc., from fast-response thermostat.

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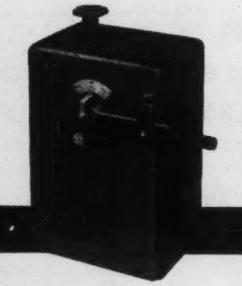

HAGAN POWER POSITIONERS

Accurate and completely reliable, the Hagan Power Positioner has plenty of power for the exact positioning of dampers, valves and other mechanisms.

Movement of piston is normally linear with signal pressure, but any desired relationship may be obtained by shaping the cam of the integral feedback mechanism. The Hagan Power Positioner is air operated, and uses full 80-120 psig power air.

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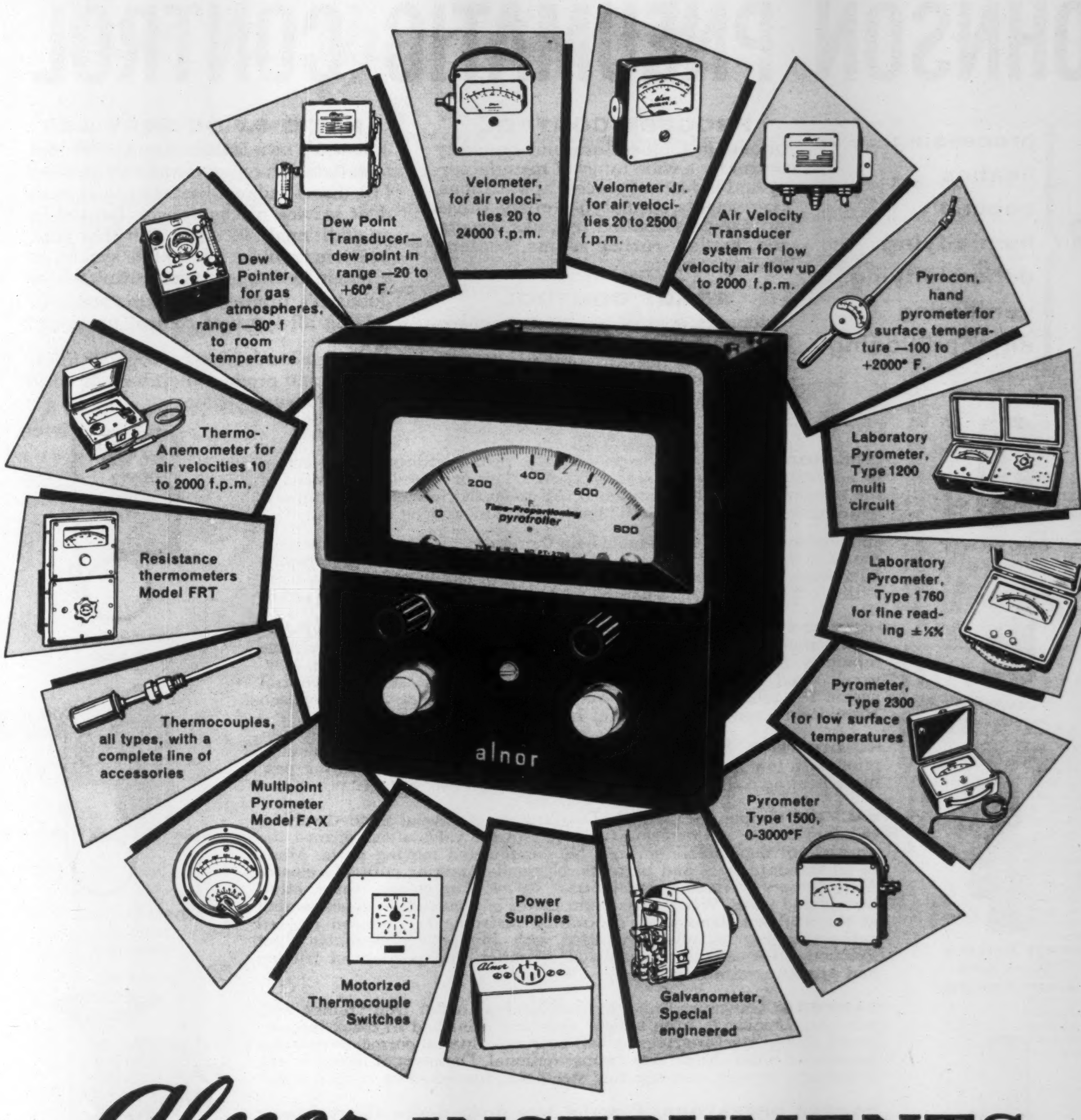
Velometer, for air velocities 20 to 24000 f.p.m.
Velometer Jr. for air velocities 20 to 2500 f.p.m.
Dew Point Transducer—dew point in range —20 to +60° F.
Air Velocity Transducer system for low velocity air flow up to 2000 f.p.m.
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600
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Alnor INSTRUMENTS

A complete line of instruments for the measurement of temperatures, air velocity, dew point and the time proportioning control of temperatures. The eighteen instruments shown here are but a part of the extensive Alnor line.

The New Alnor Time Proportioning Pyrotroller has a special safety circuit that prevents starting the production machine before the temperature of the material is up to the correct operating temperature. This same safety circuit will shut down a machine if the heat source fails, thus preventing mechanical damage to the machine, or the production of an inferior product.

All Alnor instruments are products originated and developed by our engineers and all components including movements, and electrical parts are made in our plant.

Our engineers are always ready to bridge the gap between new ideas in instrumentation presented by the pure scientist and the design of a practical working instrument that incorporates these ideas. Or to modify instruments to perform a special specific function.

We invite your engineering problems.

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FOR
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- cooling
- humidifying
- dehumidifying
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- air conditioning

PROCESS CONTROL

Automatic temperature and humidity control for a wide range of manufacturing and industrial process applications. Thermostats, special controllers, valves and dampers applied to tanks, dryers, vats, kettles, curing rooms, coolers, kilns, ovens, etc.

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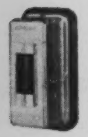
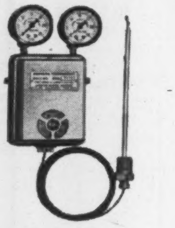
Automatic control for room temperature and humidities applied to radiators, radiant heating, unit ventilators, unit heaters, mixing units, and air distribution ducts.

NATIONWIDE SERVICE

Johnson's own full-time engineers and installation men are available in over 110 direct factory branches, and resident service mechanics are located in an additional 200 cities. Whether your problem involves a complete system or a single controller, take advantage of Johnson's unmatched experience in solving all types of control problems.

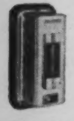
Call your local Johnson office for information and product literature, or write for Condensed Catalog.


T-400 Room Thermostat


T-800 Capillary Thermostat

THERMOSTATS: Room Thermostats are furnished in a wide selection of adjusting features allowing accessible, key or closed adjustment of the temperatures to be maintained. All room thermostats are equipped with highly sensitive bimetallic temperature-measuring elements.

Immersion insertion and remote bulb thermostats for control of temperatures in ducts, tanks, and enclosed chambers. Remote bulb thermostats have liquid-filled capillary systems. Standard capillary length is 8 ft., with 15, 25, 35, 50, 65, 75 and 85 ft. lengths available on special order.


H-103 Room Humidostat

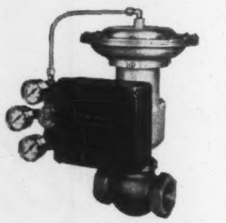
HUMIDOSTATS: Johnson humidity control instruments are affected by the amount of moisture in the air and maintain any desired relative humidity. Available in room and insertion patterns with bi-wood, bow-wood, wood cylinder, or horn elements. The most sensitive control within 1% relative humidity, even as high as 95% at 200 F. Johnson Humidostats control all types of humidifiers.

T-901 Capillary Submaster Thermostat

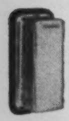
HUMIDIFIERS: Dependable "steam grid" type (perforated pipe supplied with low pressure steam) or pan type (copper evaporating pan, brass heating coil and float control) for central fan systems.

V-211 Three-Way Mixing Valve (Rubber Diaphragm)

VALVES: Simple and rugged. Diaphragms of special molded rubber, resistant to age and deterioration, operate the valve stems against the pressure of dependable springs. No complicated moving parts. Made in all standard sizes and patterns. Normally open or normally closed. Also, three-way mixing and by-pass valves. For steam, water, other liquids and gases. Where maximum power is required for repositioning at the slightest demand of controlling instruments, Johnson molded rubber diaphragm valves are fitted with Johnson's dependable Pilot Positioner, for smooth proportional operation, independent of friction and pressure variations.

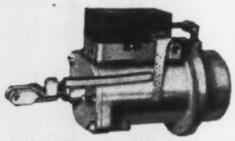

V-530 Precision Pilot Positioner

DAMPERS: Galvanized sheet steel blades in flat iron frames with adequate bracing to form a rigid assembly. Finished in black lacquer. Brass pins in steel bearings or ball bearings. Special corrosion-resisting finishes on order. Angle iron frames optional. Dampers of monel metal, aluminum, copper, rust-resisting steel, etc., furnished on special order.


T-1210 Room Temperature Transmitter

DAMPER OPERATORS: Powerful, long-stroke design allows damper to be operated directly from piston rod for accurate, positive positioning. No linkage or levers to lessen power. Spring and diaphragm fully enclosed. Powered by molded rubber diaphragms. Choice of mounting brackets. Available with or without pilot mechanisms as described above under "VALVES.'

T-1270 Receiver Controller


D-251 Piston Damper Operator with **D-265** Pilot Positioner

PNEUMATIC TRANSMISSION: Johnson pneumatic transmission systems provide a simplified means of centralized indication and control for air conditioning, heating, and ventilating systems. Johnson offers a complete line of pneumatic transmission and control center instrumentation, including room transmitters, remote bulb transmitters, indicators, receiver-controllers, recorders, related apparatus, and custom-designed control centers.

OTHER EQUIPMENT: In addition, Johnson offers a wide choice of related equipment, including static and differential pressure regulators, pneumatic switches, liquid level regulators (float type), pneumatic step controllers, relays, recording and indicating controllers, aspirating cabinets, thermometers, and gages.

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3	23	43	63	83	103	123	143	163	183	203	223	243	263	283	303	323	343	363	383
4	24	44	64	84	104	124	144	164	184	204	224	244	264	284	304	324	344	364	384
5	25	45	65	85	105	125	145	165	185	205	225	245	265	285	305	325	345	365	385
6	26	46	66	86	106	126	146	166	186	206	226	246	266	286	306	326	346	366	386
7	27	47	67	87	107	127	147	167	187	207	227	247	267	287	307	327	347	367	387
8	28	48	68	88	108	128	148	168	188	208	228	248	268	288	308	328	348	368	388
9	29	49	69	89	109	129	149	169	189	209	229	249	269	289	309	329	349	369	389
10	30	50	70	90	110	130	150	170	190	210	230	250	270	290	310	330	350	370	390
11	31	51	71	91	111	131	151	171	191	211	231	251	271	291	311	331	351	371	391
12	32	52	72	92	112	132	152	172	192	212	232	252	272	292	312	332	352	372	392
13	33	53	73	93	113	133	153	173	193	213	233	253	273	293	313	333	353	373	393
14	34	54	74	94	114	134	154	174	194	214	234	254	274	294	314	334	354	374	394
15	35	55	75	95	115	135	155	175	195	215	235	255	275	295	315	335	355	375	395
16	36	56	76	96	116	136	156	176	196	216	236	256	276	296	316	336	356	376	396
17	37	57	77	97	117	137	157	177	197	217	237	257	277	297	317	337	357	377	397
18	38	58	78	98	118	138	158	178	198	218	238	258	278	298	318	338	358	378	398
19	39	59	79	99	119	139	159	179	199	219	239	259	279	299	319	339	359	379	399
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14	34	54	74	94	114	134	154	174	194	214	234	254	274	294	314	334	354	374	394
15	35	55	75	95	115	135	155	175	195	215	235	255	275	295	315	335	355	375	395
16	36	56	76	96	116	136	156	176	196	216	236	256	276	296	316	336	356	376	396
17	37	57	77	97	117	137	157	177	197	217	237	257	277	297	317	337	357	377	397
18	38	58	78	98	118	138	158	178	198	218	238	258	278	298	318	338	358	378	398
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A MAJOR BREAKTHROUGH IN HIGH PRECISION LOW COST TEMPERATURE INSTRUMENTATION

These simple, highly efficient, quality instruments represent a completely new approach to temperature measurement recording and control. Servo-operated, self-balancing and transistorized, these thoroughly tested units are now available at a fraction of the cost of comparable precision instrumentation.

Only Fielden Electronics, Inc. can supply BIKINI or other Fielden Instruments.

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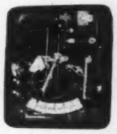
BAILEY METER

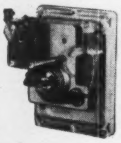
TEMPERATURE INSTRUMENTS

INDICATING-TRANSMITTING



MINI-LINE Temperature Transmitter directly indicates measured temperature and pneumatically transmits temperature measurements of liquids and gases. Uses closed, helium gas-filled system. Standard ranges available from 0-200F to 0-1200F. Suppressed ranges also available. Pneumatic output is 3-15 psig or 3-27 psig. Request Spec P51-4 for details.

RECORDING



Mercury-filled thermal system includes plug-in module for Bailey Recorder, connecting capillary, and sensing bulb. Up to four modules may be combined in one recorder case. Standard ranges from 0-200F to 0-1200F available in addition to suppressed ranges. Request Spec M51-5 for details.

BAILEY METER COMPANY
1041 Ivanhoe Rd., Cleveland 10, Ohio

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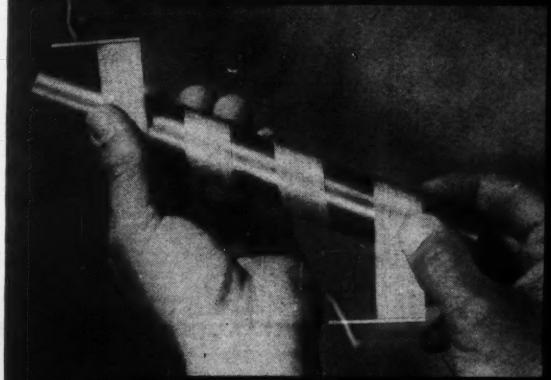
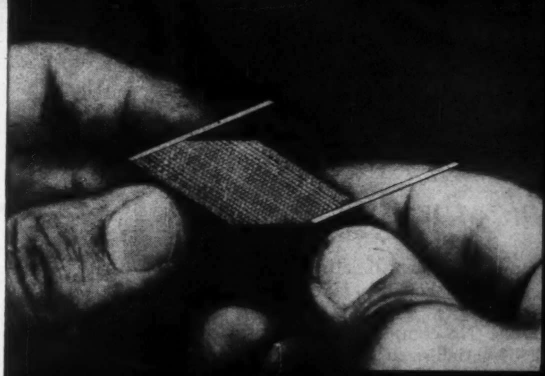
NEW WOVEN TEMPERATURE DETECTOR-GREATER ACCURACY AT LOWER PRICE!

Just peel off and stick on.



Form to fit curved surfaces.



Complete accuracy on irregular areas.

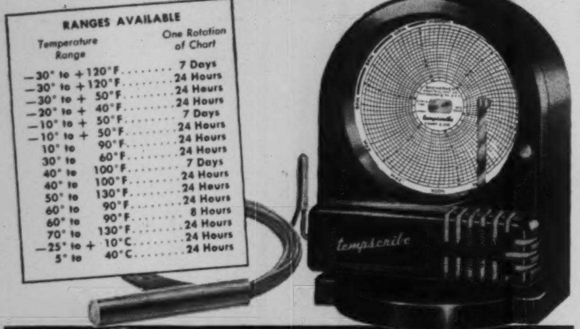
The new CIC Temperature Detector combines ruggedness and increased temperature ranges (up to 1000 degrees Fahrenheit) to give you a whole new parameter in the measurement of temperature by resistance change. Its unique design of nickel or platinum resistance wire woven through fiber glass carrying threads assures sharp and accurate response — higher resistance per linear inch — calibration within ½% — and complete freedom from strain gauge effect.

Best of all the price is one third to one half that of ordinary Temperature Detectors. **You have to see it to believe it!** Just drop us a line for complete information. Evaluation prototypes immediately available.

CONTROL INDICATING CORPORATION
AN AFFILIATE OF HI-G INC.
BRADLEY FIELD, WINDSOR LOCKS, CONN.

CIC

For Accurate TEMPERATURE RECORDS at MODERATE COST



RANGES AVAILABLE

Temperature Range	One Rotation of Chart
—30° to +120°F	7 Days
—30° to +120°F	24 Hours
—30° to + 50°F	24 Hours
—20° to + 40°F	24 Hours
—10° to + 50°F	7 Days
—10° to + 50°F	24 Hours
10° to 90°F	24 Hours
30° to 60°F	24 Hours
40° to 100°F	7 Days
40° to 100°F	24 Hours
50° to 130°F	24 Hours
60° to 90°F	24 Hours
60° to 90°F	8 Hours
70° to 130°F	24 Hours
—25° to + 10°C	24 Hours
5° to 40°C	24 Hours

Use TEMPSCRIBE Recorders

BULB-TYPE (illustrated)—*For recording temperatures at a distance*
BI-METAL TYPE — *For recording temperatures in surrounding air*

- ✓ Portable—easily carried. Can be set on flat surface or hung on wall.
- ✓ Spring-wound instrument-type clock: 3 standard movements—8 hours, 24 hours or 7 days.
- ✓ Instrument measures 4½" x 5½" x 7½"; uses 4¼" diameter charts.
- ✓ Chart graduations easy-to-read; spaced uniformly over full range.
- ✓ Pen and its actuating components are in door. Doors are completely interchangeable to convert to any temperature range, or from bi-metal type to bulb-type.

Also available: (1) Interchangeable door with electro-magnetic armature to record running time of motors, burners, solenoid valves, etc. (2) Two-pen doors for recording temperature and electrical operation on same chart.

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for . . . **TRANSIENT TEMPERATURES**

COAXIAL THERMOCOUPLES 0.015" and up diameter. 1 microsecond time constant for SURFACE TEMPERATURES.

Fine-Wire Thermocouples 0.001 to 0.003 in. Rugged bodies. 10 Millisecond time constant for GAS TEMPERATURES.

MODELS MADE FOR YOUR APPLICATIONS
WRITE TODAY

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THERMOCOUPLE Selector Board

helps you select the right thermocouple for the job!

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The Finest in Temperature Sensing Elements
THERMOCOUPLE SELECTOR BOARD
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SMITH thermotronics, inc.
CONSHOHOCKEN, PENNSYLVANIA
TEMPERATURE MEASUREMENT SPECIALISTS

The BIG FOUR thermocouples shown will satisfy over 90% of the standard thermocouple applications. Now you can select a thermocouple from stock which is custom pre-engineered to suit your needs. No complex ordering instructions. No infinite amount of variables to specify. All of the engineering is done for you. All sizes shown in full scale. PERMAKOUPLE® is the PERMAnent thermo-KOUPLE, made by the exclusive SPS process (Single Pass Swaging). It is the *only* thermocouple manufacturing process accepted by leading Nuclear installations for dependable accuracy and stability throughout long in-service life.

PERMAKOUPLES are Twice as Accurate as Standard ISA Specifications

For special applications, you have complete choice of OD, calibration, sheath, insulation, t/c length, lead length, termination, mounting method, measuring junction, etc.

Smith Thermotronics also manufactures thermocouple wire, extension wire, cable, plugs, jacks, and heads.

Representatives in principal cities. Write for TSB-1.

SMITH thermotronics, inc. CONSHOHOCKEN, PENNSYLVANIA / TAYLOR 8-4790

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THERMOCOUPLES

MINIATURE

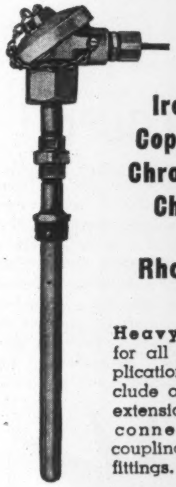
Iron-Constantan
Copper-Constantan
Chromel-Constantan
Chromel-Alumel
Platinum-Rhodium-Platinum

GASKET
BAYONET
RIVET
EXPOSED LOOP
PROTECTED
SHIELDED
STAGNATION

Industrial Miniature thermocouples are made for use in chemical and oil refining processes, power plants, plastic molding, etc.—for any application requiring a small size yet sensitive assembly.

Aircraft Miniature Thermocouples, harnesses, connectors and extension wires, including "MIL" spec types, for turbo and reciprocating engines. Thermocouples designed for airborne or test stand use.

HEAVY DUTY INDUSTRIAL



Iron-Constantan
Copper-Constantan
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Platinum-Rhodium-Platinum

Heavy Duty thermocouples for all industries and all applications. Accessories include a complete selection of extension wires, terminals, connection heads, quick-coupling connectors and fittings.

PROTECTION TUBES THERMO WELLS

Available in all commercial materials for all industries. Both built-up and bar stock.

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Thermo Electric *Temperature Measuring Systems and Components*
Co., Inc., Saddle Brook, N.J.
In Canada: THERMO ELECTRIC (Canada) LTD., Brampton, Ont.

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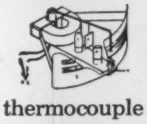
Gardsman by WEST

TEMPERATURE CONTROLLERS

serve your need Best



General characteristics: indicating *and* providing positive control; distinctively simple, convenient, reliable, economical; tubeless; plug-in meter units; thermocouple break protected; guaranteed; demonstrated and serviced from offices in many cities here and abroad.

See us at the
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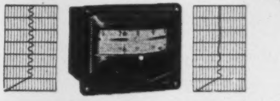
MODEL J SERIES

for Off-On control

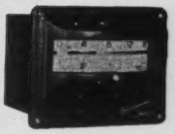


MODEL JP SERIES

for Proportioning control; more precise where heating-cooling factors are more dynamic

MODEL JL SERIES

combines High Limit and Off-on control

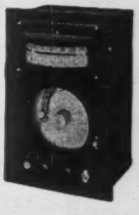


MODEL JE SERIES

Portable—ideal for laboratories

MODEL JG SERIES

provides Program control, applying any of above control actions to control both time and temperature.



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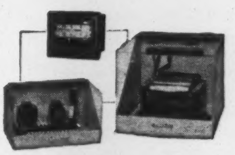
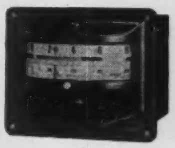
gives Stepless control; extremely precise



MODEL JT SERIES

gives 3-Position control for motorized valves, 3-phase heating, heating-cooling cycles



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the trend is to WEST

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SUBSIDIARY OF GI GULTON INDUSTRIES, INC.
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Represented in Canada by Davis Automatic Controls, Ltd.

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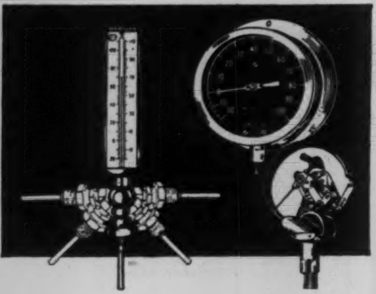

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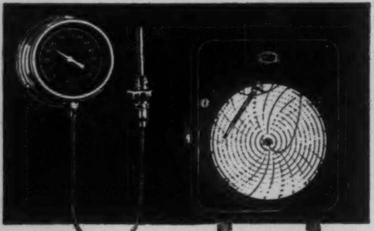
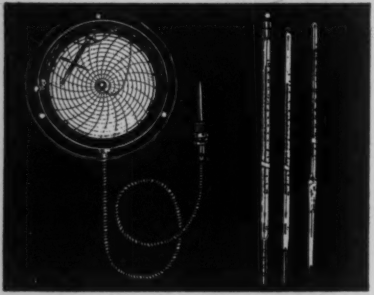


for accurate, long-lasting instruments to indicate



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THERMOCOUPLES, Base Metal (see also Wire, Thermocouple—Cat. 9)

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THERMOCOUPLES, Contact Type (see also Thermometers, Surface)

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Astra Technical Instr
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NANMAC
(Actual Size)
OVER 5000° F.!

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"PLASTIC THERMOCOUPLE"

The body of the Model "P" thermocouple can be fabricated from any plastic, plastic-mineral composites, non-metal, alloy, or special proprietary material. Thus surface or in-wall temperatures of a wide variety of materials can be measured accurately without disturbing the normal heat distribution pattern caused by differences in thermal properties. Examples of materials successfully used in the Model "P" include: plexiglass, asbestos phenolics, graphite, copper, molybdenum and special proprietary plastics.

FEATURES

- √ Response time—less than 10 microseconds to transient temperatures.
- √ Thermal junction maintained even during erosion.
- √ Temperature range from —320° F to over 5000° F.
- √ Pressure range to over 5000 PSL.
- √ Two-dimensional thermal junction for accurate location of point of measurement.
- √ Thermocouple constructed of flat ribbon wires and mica insulation.

NANMAC CORPORATION
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Motech Co
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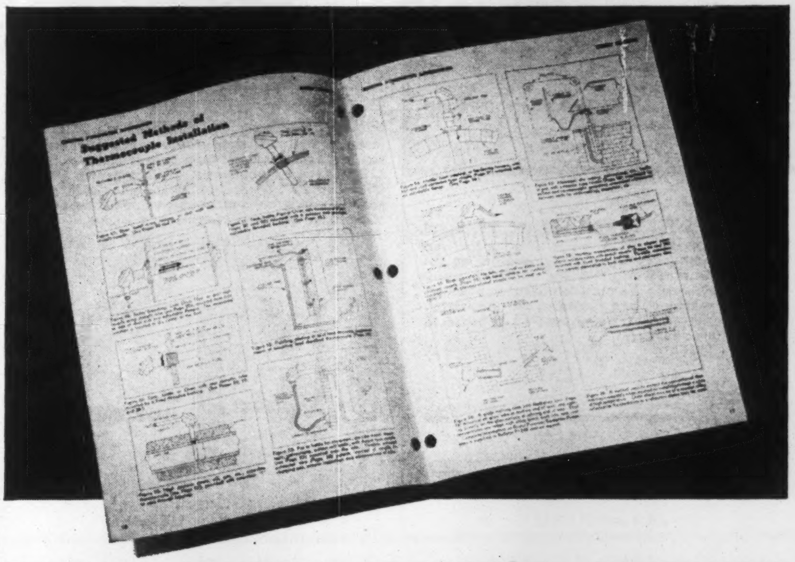
Nanmac Corp
Pacific Transducer Corp
Philco Corp
Physical Sciences Corp
Propulsion Dev Labs
Pyro-Electric Inc
Pyro Service Co
Pyrometer Co of Amer
Pyrometer Instr Co
Revere Corp of Amer
Richards Co Arklay S
Rosemount Engrg Co
Rustrak Instrument Co
Slocomb Co J T
Smith Thermotronics
Thermo Electric
Thermo Products
Trinity Equipment
United Sensor & Control
West Instrument
Wheelco Instruments Div

THERMOCOUPLES, Rare Metal

Advanced Dynamics
Advanced Technology Labs
Aero Research Instr
Amperex Electronic
Atkins Technical Inc
Atlantic Pyrometers Inc
Barber-Colman
Bram Metallurgical Chem
Bristol Co
Continental Sensing
Epic Inc
Foxboro Company
Gordon Co Claud S
Harco Labs
High Temperature Instrs
Illinois Testing Labs
Ind Pyrometer & Supply
Instrulab Inc
Leeds & Northrup
McHugh & Son Raymond F
Meters Inc
M-H Brown Instrs Div
Motech Co
Nacimco Products
Nanmac Corp
Pacific Transducer Corp
Philco Corp
Propulsion Dev Labs
Pyro-Electric Inc
Pyrometer Co of Amer
Pyro Service Co
Rescon Electronics
Revere Corp of Amer
Richards Co Arklay S
Rosemount Engrg Co
Slocomb Co J T
Smith Thermotronics
Texas Instruments Inc
Thermo Electric
Thermo Products Co
Trinity Equipment
West Instrument
Wheelco Indus Instrs

THERMOMETERS, Dial, Bi-metal

Abbeon Inc
American Meter
American Standard
Amer Standard Controls
Bacharach Indus Instr
Bristol Co
Cooper Thermometer
Daystrom/Weston
Dillon & Co W C
Eastman Kodak
Engelhard Industries
Fischer & Porter Co



Suggested Methods of Thermocouple Installation

THE DEFINITIVE BOOK
on thermocouples and pyrometer accessories

It's still Bristol's big 56-page "Buyers' Guide and Users' Manual"—yours for the asking.

One of the most useful publications ever directed specifically to the industrial pyrometer user, this buyers' guide catalogs Bristol's comprehensive line of thermocouples, protection tubes, thermocouple wire and radiation unit accessories. But, in addition to this, it's a compendium of technical data for the pyrometer user—essential to newcomers to the field, valuable reference data to the old hand. Here's just a partial listing of topics discussed:

- Thermocouple types
- Factors affecting thermocouple life
- Thermocouple reproducibility
- Calibrated thermocouples
- Thermocouple insulation
- Thermocouple protecting tubes
- Thermocouple extension wires and cold-end compensation
- Selecting the right thermocouple and protecting tube
- Responsiveness of thermocouples

... plus more than 165 illustrations, plus 8 pages of thermocouple calibration tables. It's a manual you can't afford to be without. Write for your copy of Bristol's "Thermocouple and Pyrometer Accessories Buyers' Guide and Users' Manual," Bulletin No. P1238, today. The Bristol Company, 130 Bristol Road, Waterbury 20, Conn.

O.32

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AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

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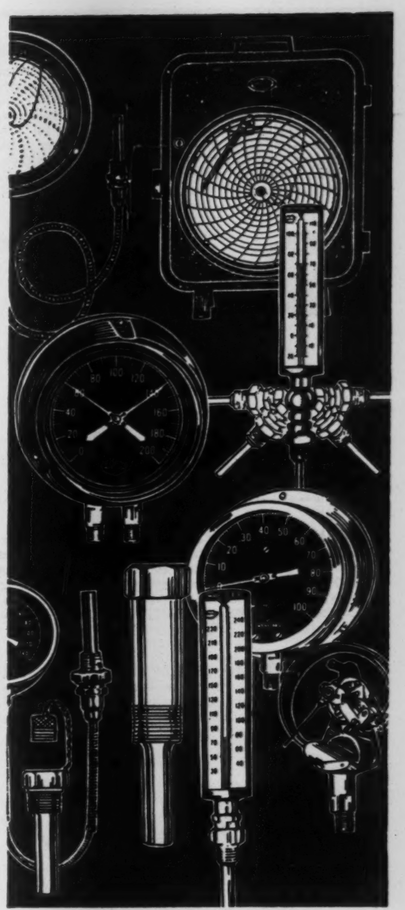

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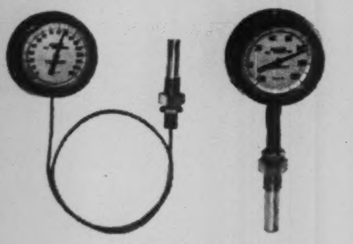

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ENGRAVED STEM THERMOMETERS with permanent pigment fused into glass. Made in standard and extreme precision grade in ranges from minus 150° to plus 1125°F. or Centigrade equivalent to meet Government, ASTM and other specifications. Enclosed PORCELAIN and PAPER SCALE Thermometers also available.

HYDROMETERS PLAIN FORM or COMBINED with THERMOMETER made in all scales, specify gravity, Baume, Brix, Twaddle, Balling scales, etc., available for all liquids. Standard and commercial grades.

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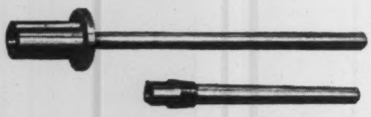
There's more than meets the eye in Moeller products. Designed with timelessness in mind, they are the result of engineering and production experience gained in over 90 years of design, manufacture and successful application of temperature measuring instruments.

THERMOCOUPLE PROTECTIVE TUBES and WELLS and THERMOMETER TEST WELLS made in all sizes and alloys, and produced on specially designed equipment. These precision parts are drilled true and are concentric with the outside diameter. The surfaces are machined and tooled to the closest tolerance to permit maximum speed of response to temperature changes.



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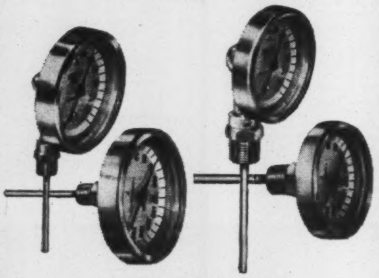
MOELLER BIMET DIAL THERMOMETERS are actuated by a powerful, specially processed bi-metal helix and feature 3" and 4½" anti-parallax dials to assure accurate reading from any angle. Furnished in new stainless steel cases and fixed stem. Available with union connection or separable sockets. Scale ranges from minus 100° to plus 1000°F. or Centigrade equivalents.



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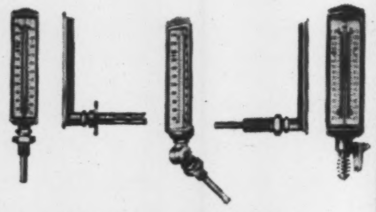
MOELLER INDUSTRIAL THERMOMETERS made in adjustable and all fixed forms — Straight angle, etc., in scale ranges from minus 120° to plus 1125°F. or its equivalent in Centigrade. Available in 5", 7", 9" and 12" scale sizes with plain stems, union connection stems and separable sockets in all stem lengths and alloys.



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Pacific Transducer Corp
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Powers Regulator
Precision Thermometer
Rochester Mfg Co
Royco Instruments Inc
Ryan Recording Thermom
Sanders Laboratories
Soiltest Inc
Taylor Instrument Cos
Tel-Tru Mfg Co
Testing Machines Inc
Trerice Co H O
U S Gauge Div
Warren Automatic Control
Weksler Instruments
Welch Mfg Co W M

THERMOMETERS, Dial, Gas, Mercury, Organic Liquids, Filled, or Vapor-pressure

American Standard
Amer Standard Controls
Bacharach Indus Instr
Bendix-Friez Instr
Bristol Co
Controls Co of Amer
Cooper Thermometer
Daystrom/Weston
Dickson Co
Dillon & Co W C
Electric Autolite
Engelhard Industries
Fischer & Porter Co
Foxboro Company
Green Instrs Henry J
Greiner Co Emil
H-B Instrument
Johnson Service Co
M-H Industrial Controls
Manning Maxwell & Moore
Marsh Instr Co
Martin & Co H S
Modern Lab Equip
Moeller Instrument Co
Moore Products Co
Nurnberg Scientific
Pacific Transducer Corp
Palmer Thermometers
Partlow Corp
Philadelphia Scien Glass
Powers Regulator
Robertshaw-Fulton Contl
Rochester Mfg Co
Sanders Laboratories
Scientific Instrument
Seegers Mfg
Taylor Instrument Cos
Testing Machines Inc
Trerice Co H O
U S Gauge Div
Warren Automatic Control
Weksler Instruments
Welch Mfg Co W M

THERMOMETERS, Electrical Resistance, Indicating, Recording and/or Controlling

Advanced Instr Corp
Aero Research Instr
Air Conditioning Equip
Allegany Instrument
Ameresco Inc
Apex Scientific Co
Arnoux Corp
Astra Technical Instr
Atkins Technical Inc
Automation Dynamics
Automation Electronics
Bacharach Indus Instr
Bailey Meter Co
Barber-Colman
Bendix-Friez Instr
Bendix-Pacific
Bristol Co
Budd Co Inst Div
Consol Controls
Consolidated Airborne
Controls Co of Amer
Convair Instruments
Cox and Company
Crescent Engrg & Res
Daystrom/Weston
Dorsett Electronics Inc
Edison Industries T A
Electronic Processes Corp
Engelhard Industries
Fenwal Inc
Fielden Electronics
Fischer & Porter Co
Fisher Scientific
Foxboro Company
GE Apparatus Sales Div
Gelman Instrument
General Dynamics/Elx
Green Instrs, Henry J
Gulton Industries
Hagan Chem & Controls
Hallikainen Instrs
Harrel Inc
Hays Corp
High Temperature Instrs
Illinois Testing Labs
Indikon Inc
Kahn Co
Kulite Semiconductor
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Norwood Controls
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Performance Measurements
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RDF Corp
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Ruge Associates
Ryan Recording Thermom
Schuco Scientific
Sensitive Research Inst
Simpson Electric
Swartwout Div
Taper Micrometer Corp
Testing Machines Inc
Thermo Electric
Tipptronic Inc
Trans-Sonics
Trerice Co H O
United Control Corp
United Electric Controls
WacLine Inc
Weksler Instruments
West Instrument Corp
Westronics Inc
Wheelco Indus Instrs
Yellow Springs Instr

LEWIS SELECTOR SWITCHES

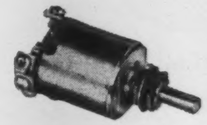
for RESISTANCE THERMOMETERS • for THERMOCOUPLE THERMOMETERS

THE 9S SERIES / *The Space Savers*

Small, sturdy, steel cased switches, 1¼ inches in diameter, 2 9/32 inches total shaft length, one-hole mounting with ½ inch-32 NS-2A threaded bushing. Designed especially for connecting two or more resistance bulbs to one instrument.

Part No.	Description
9S5	Single pole, four positions (with knob)
9S5B	Single pole, four positions
9S5E	Single pole, five positions
9S10	Double pole, double throw

All make before break, the instrument connected is never subjected to an open circuit during the switching operation.



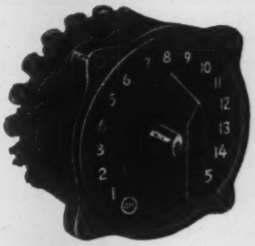
1¼ INCH SIZE

EACH SWITCH HAS "OFF" POSITION PLUS NUMBER OF POINTS LISTED.

Points	Size	Switch Part Numbers Thermocouple Type	3 Wire Resistance-Thermometer Type
2	2"	11S2	36SR2
3	2"	11S3	36SR3
4	2"	11S4	36SR4
5	3"	10S5	37SR5
6	3"	10S6	37SR6
8	3"	10S8	37SR8
9	3"	10S9	37SR9
10	3"	10S10	37SR10
12	3"	10S12	37SR12
16	3"	10S16	37SR16
18	3"	10S18	37SR18
20	3"	10S20	37SR20
24	4"	27S24B2	38SR24
28	4"	27S28B4	38SR28
40	4"	38S2C	

(No. 38S2C is made with soldering-lug terminals)

2 INCH SIZE



3 INCH SIZE

SPECIAL SWITCHES

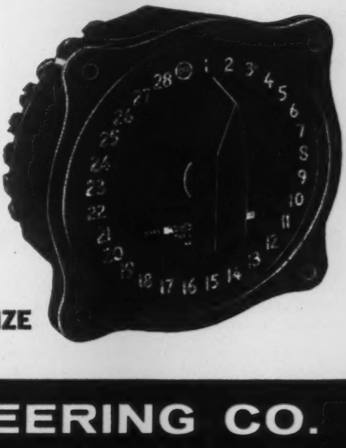
37S6C2, Four "4-point and OFF" thermocouple switches combined in one 3" case.

The 44S Series, 2 9/32 inches in diameter, shaft 2¼ inches, approx. One-hole mounting with ½ inch-32 NS-2A threaded bushing.

Part No.	Description
44S4	Six pole, double throw
44S7B	Double pole, four position
44S7B2	Double pole, double throw

For use with resistance thermometer, contacts make before break.

DESIGNED FOR TEST WORK AS WELL AS FOR PERMANENT INSTALLATIONS. LEWIS SELECTOR SWITCHES ARE CONSTRUCTED WITH STURDY CONTACTS OF LOW RESISTANCE AND POSITIVE DETENT. THESE SWITCHES ARE SPLASHPROOF, DUSTPROOF AND ARE BUILT TO GIVE YEARS OF SERVICE.



4 INCH SIZE

THE LEWIS ENGINEERING CO.
Specialists in Electrical Temperature Measurements
NAUGATUCK, CONNECTICUT

CIRCLE 133 ON READER-SERVICE CARD

TRI-R THERMOMETER

THERMISTOR TYPE

- **RAPID** . . . read temperatures in seconds
- **ACCURATE** . . . ±½% of scale range
- **RANGES** . . . from —35 to +150°C.
- **DIRECT READING** . . in °C. and °F.
- **REMOTE READING** . . . leads to 1000 ft.
- **STABLE** . . . battery or line operated models
- **PROBES** . . . for industrial, laboratory, medical use.
- **LOW COST** . . . priced from $72.00

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JAMAICA 35, NEW YORK

CIRCLE 134 ON READER-SERVICE CARD

When Using This Guide look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

THERMOMETERS, Indicating, Glass, including Mercury, Spirit

Abbeon Inc
Accuracy Scientific
Ace Glass Inc
American Meter
Atkins Technical Inc
Bacharach Indus Instr
Bristol Company
Eastman Kodak
Engelhard Industries
Ever Ready
Fischer & Porter Co
Fisher Scientific
Gove S Sons Hartley
Green Instrs Henry J
Griebel Co, E
H-B Instrument
Hill & Co E Vernon
Huppert Co, K H
Klinger Scientific
Manning Maxwell & Moore
Martin & Co H S
Modern Lab Equip
Moeller Instrument Co
North Atlantic Indus
Nurnberg Scientific
Pacific Transducer Corp
Palmer Thermometers
Philadelphia Scien Glass
Precision Scientific Co
Precision Thermometer
Schuco Scientific
Scientific Glass App
Scientific Instrument
Soiltest Inc
Tagliabue Div
Taylor Instrument Cos
Testing Machines Inc
Thermometer Corp of Amer
Trerice Co H O
U S Gauge Div
Warren Automatic Control
Weiss & Son Inc
Weksler Instruments
Welch Mfg Co W M

THERMOMETERS, Indicating, Pressure-spring

American Meter
Barber-Colman
Bristol Co
Cooper Thermometer
Daystrom/Weston
Dickson Co
Engelhard Industries
Fischer & Porter Co
General Dynamics/Elx
Hill & Co E Vernon
M-H Brown Instrs Div
Manning Maxwell & Moore
Marsh Instrument Co
Marshalltown Mfg
Moeller Instrument Co
Nurnberg Scientific
Pacific Transducer Corp
Palmer Thermometers
Pimex Inc
Powers Regulator
Republic Flow Meters
Scientific Instrument
Seegers Mfg
Taylor Instrument Cos
Testing Machines Inc
Trerice Co H O
U S Gauge Div
Warren Automatic Control
Weksler Instruments

THERMOMETERS, Maximum and Minimum Registering

Accuracy Scientific
American Standard
Amer Standard Controls
Bacharach Indus Instr
Bristol Company
Daystrom/Weston
Engelhard Industries
Green Instrs Henry J
H-B Instrument
Manning Maxwell & Moore
Marshall Instrs
Moeller Instrument Co
Nurnberg Scientific
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Investigate the *Dillon* Stainless Steel Thermometer

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Dillon
100
250
°F
50
300

- Fah. and Cent. ranges for every temp. requirement, gas or liquid
- 1", 1 11/16", 2 5/16", 3", 5" head sizes
- Stem lengths from 2½" to 72"
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- Pressure & moisture proof. Overheat protected.
- Corrosion resistant (bezels & stems made of 316 ss)
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Apex Scientific Co
Bailey Meter Co
Barber-Colman
Belfort Instrument
Bristol Co
Daystrom/Weston
Dickson Co
Electric Autolite
Engelhard Industries
Fischer & Porter Co
Flow Measurements
Foxboro Company
General Dynamics/Elx
Green Instrs Henry J
Hill & Co E Vernon
Johnson Service Co
M-H Brown Instrs Div
M-H Industrial Controls
Manning Maxwell & Moore
Mason Neilan
Moeller Instrument Co
Moore Products Co
Pacific Transducer Corp
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Pimex Inc
Powers Regulator
Republic Flow Meters
Robertshaw-Fulton Contl
Rustrak Instrument Co
Ryan Recording Thermom
Scientific Instrument
Taylor Instrument Cos
Trerice Co H O
United Electric Controls
U S Gauge Div
Warren Automatic Control
Weksler Instruments
Wheelco Indus Instrs

THERMOMETERS, Surface

Abbeon Inc
Aero Research Instr
Ameresco Inc
Atkins Technical Inc
Bristol Co
Convair Instruments
Daystrom/Weston
Dillon & Co W C
Engelhard Industries
Ercona Corp
Foxboro Company
Gelman Instrument
Green Instrs Henry J
Harco Labs
Illinois Testing Labs
Minco Products
Moeller Instrument Co
Nacimco Products
Nurnberg Scientific
Owens-Illinois Glass Co
Pacific Transducer Corp
Precision Thermometer
Pyrometer Instr Co
RDF Corp
Radiation Electronics
Rosemount Engrg Co
Royco Instruments Inc
Ruge Associates
Trans-Sonics
Trerice Co H O
United Control Corp
Weksler Instruments
West Instrument Corp
Yellow Spring Instr

THERMOMETERS, Thermistor (see also Thermistors—Cat. 8)

Advanced Instruments
Aero Research Instr
Ameresco Inc
Atkins Technical Inc
Automation Electronics
Barnes Engineering
Bristol Co
Electro-Medical Lab
Fenwal Inc
G E Apparatus Sales Div
Gulton Industries
Hughes Aircraft
Kahn & Co
King-Seeley Div
M-H Brown Instrs Div
Marshall Instrs
Mira Corp
Nacimco Products
Owens-Illinois Glass Co
Precision Thermometer
Rosemount Engrg Co
Royco Instruments Inc
Simpson Electric
Taper Micrometer Corp
Tipptronic Inc
Trerice Co H O
Tri-R Instruments
Victory Engrg Corp
Waters Corp
Yellow Spring Instr

THERMOSTATS

Accuracy Scientific
Alloy Bellows
Amer Standard Controls
Apex Scientific Co
Barber-Colman
Blue M Electric
Brabender Instr C W
Burling Instrument
Central Scientific
Chatham Controls
Control Products
Controls Co of Amer
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Dales Co Franklin
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Hagan Chem & Controls
H-B Instrument
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Leslie Co
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Metals & Controls Inc
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Norwood Controls
Nurnberg Scientific
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Pimex Inc
Powers Regulator

THERMOMETERS, —Recording and Automatic Controlling . . . for temperatures from —125F to +1000F

Bristol Series 500 Thermometers, the product of over 70 years of instrument-making experience, feature the latest developments in instrument engineering.

In manufacturing hundreds of thousands of recording and automatic controlling thermometers, The Bristol Company has developed a variety of models, sizes, and temperature ranges to fill every requirement.

Write for Bulletin T840.

BRISTOL COMPANY
112 Bristol Rd., Waterbury 20, Conn.

CIRCLE 135 ON READER-SERVICE CARD

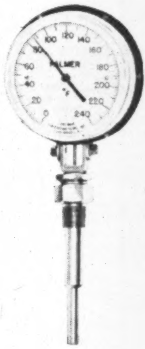
PALMER a great name in thermometers

PALMER "DIRECT DRIVE" 3½" DIAL THERMOMETER

An outstanding improvement in mercury actuated dial thermometers with external calibration feature.

- No Sector
- No Pinion
- No Linkage
- Accuracy
- Readability
- Angularity

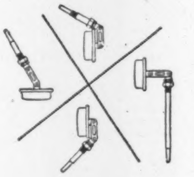
Case . . . stainless steel, compensated for ambient temperature, external calibrating feature. Cover . . . clear plastic, gasket-sealed to stainless steel back-plate. Actuation . . . direct drive Bourdon coil. (No sector, pinion or linkage.) Stem . . . ½" diameter stainless steel, standard lengths: 4"—6"—8"—12", multiples of 6" up to 60" max. . . . Fittings . . . separable socket, union connection (½" or ¾" NPT), flange union.



PALMER 4½" DIAL THERMOMETER

Adaptable and interchangeable with all Industrial Thermometer applications.

MERCURY-ACTUATED. Guaranteed accuracy. Size: 4½" Dial.

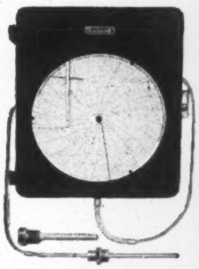


Designed for use as STRAIGHT or any ANGLE. With clear vision all-glass moulded case and metal back. Fittings: Plain, Union, Socket; adjustable or union Flanges.

STANDARD RANGES:

−30+130°F.	1°	0+300°F.	2°	0+600°F.	5°
0+150°F.	1°	0+400°F.	5°	+200+750°F.	5°
0+240°F.	2°	0+500°F.	5°	+200+950°F.	5°

or equivalent °C—no extra charge

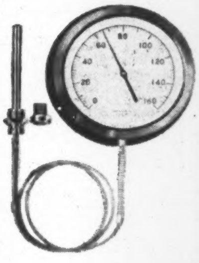


RECORDING and DIAL THERMOMETERS

With Flexible Tubing Connection.

Mercury-actuated, for extreme accuracy. Sturdy construction, very sensitive. All parts rust-proof. Stainless-steel bulb. Wall or Flush Mounting. Bottom or Back connection. Fittings: Plain, Union, Sep. socket; Adj. or Union Flanges.

Ranges: −40 to 1000°F. (or C).



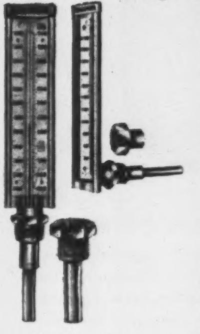
RECORDER: 12" die-cast alum. case; Black or white, satin or wrinkle finish; elec. or spring clock; 12 hr., 24 hr., or 7-day charts. One-pen or multiple pens. Also Fully compensated to correct for Ambient Temperature.

DIAL: 6" and 8" round case. Black or white finish. Easy-reading dial.

INDUSTRIAL THERMOMETERS with "Red-Reading-Mercury"

CASE: 7", 9" or 12" Extruded brass. Wide scale. Chrome finish.

TUBE: Red-Reading-Mercury Easy to Read. Thoroughly annealed for permanent accuracy. Protected by double-strength glass shield. Graduated scale.



Straight

FITTINGS: Fixed thrd., Union, Sep. Socket; adjustable or union Flange; parallel thrd. & locknut; special fttgs. to order.

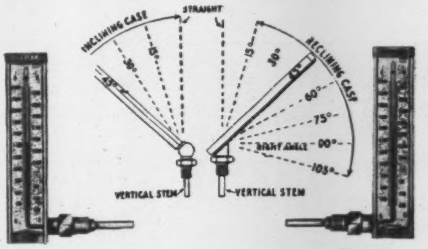
STEM: STRAIGHT and Misc. ANGLES. 3½" to 60", incl. thread.

THREAD: ¾" or 1" NPT (½" not recom.)

STANDARD RANGES:

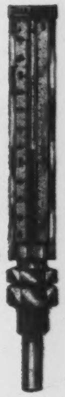
−40+110°F	2°	+ 50+400°F	5°
0+100°F	1°	+100+550°F	5°
+30+180°F	2°	+200+750°F	5°
+30+240°F	2°	+200+950°F	5°
+30+300°F	2°		

Plain Mercury. Borosilicate tube. Centrigrade equiv.—no extra. Spec. Ranges—cost more.



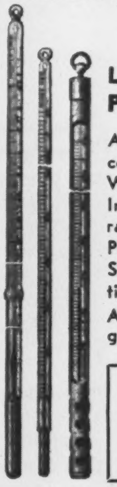
Right Side

Left Side



SMALL CASE THERMOMETERS

4" case ⅜" & ½" Fixed Thrd. Fttg.
6" case: ½" & ¾" Sep. Socket Fttg.
Extruded case. Durable Nickel finish.
"Red-Reading-Mercury". Guaranteed accurate.



LABORATORY AND PRECISION THERMOMETERS

All glass engraved mercury tube, with vivid RED column. Round or lens; Ring or button top; With or without metal armor; Total or partial Immersion (3" standard). Each in sep. box. All ranges: up to 750°F. (or C. equiv.).

Plain mercury. Borosilicate tube. +200+950°F. Special ranges & dimensions to order. Fractional division, A.S.T.M. etc.

Also handy 5" Pocket style. Annealed and guaranteed very accurate.

REPAIRS—To all makes of mercury Industrial Thermometers. With "Red-Reading-Mercury" (no extra cost) and new Extruded Brass case included. Guaranteed accurate. Reasonable price.

PALMER THERMOMETERS, INC.
Mfrs. of Industrial Laboratory, Recording and Dial Thermometers
5218 NORWOOD AVE., CINCINNATI 12, O.

CANADIAN DISTRIBUTORS: BROOKS INSTRUMENT CANADA LTD.
32 HOWDEN ROAD SCARBOROUGH, ONTARIO, CANADA

CIRCLE 137 ON READER-SERVICE CARD

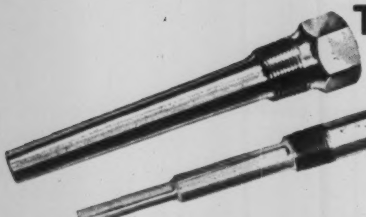
TIMERS

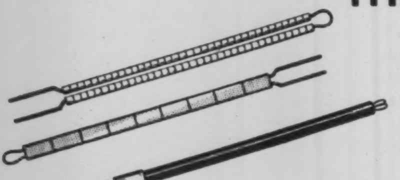
FOR INDUSTRIAL PROCESS CONTROL

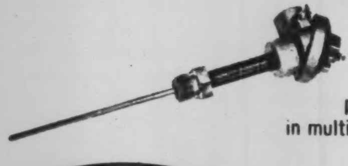
Standard, off-the-shelf timers for every control application, *plus* complete design and engineering for special requirements. Hundreds of models available, miniature to complete control panels. Rugged, dependable. Large knobs for easy setting, unique dial and pointer design for faster, more accurate readings. Easy one-hole mounting on most models. All time cycles from split seconds to days.

WRITE FOR NEW CATALOG T-100

atc
AUTOMATIC TIMING & CONTROLS, INC.
KING OF PRUSSIA, PENNA.
A Subsidiary of American Manufacturing Company, Inc.
CIRCLE 138 ON READER-SERVICE CARD







THERMOWELLS

Trinity Thermowells fit right, work right and last longer. Made of certified materials to the most exacting tolerances in the industry, Trinity Thermowells are backed by a written guarantee accompanying each standard well.

THERMOCOUPLES

A complete selection of wire materials and sizes, welded to meet or exceed the industry's standards assure you accurate performance in every installation when you select a Trinity Thermocouple.

TRINOX

Precise thermocouple assemblies sheathed in a protective well for miniaturized, or hard-to-reach points in a system or assembly. Also available in multi-point assemblies. Trinox is available in sizes down to .040" in diameter.

TRINITY

WRITE FOR COMPLETE MANUALS...

TRINITY EQUIPMENT CORPORATION, CORTLAND, NEW YORK
CIRCLE 139 ON READER-SERVICE CARD

Precision Scientific Co
Sciaco Controls
Stevens Mfg Co
Temperature Engrg Corp
Texas Instruments Inc
Ulanet Co George
United Aircraft Prods
United Control Corp
United Electric Controls
Valverde Laboratories
Vapor Heating Corp
Wilcolator
Yellow Spring Instr

THERMOWELLS

Advanced Dynamics
Aero Research Instr
American Standard
Bristol Co
Champion Wire & Cable
Dillon & Co W C
Edison Industries T A
Fansteel Metallurgical
Fenwal Inc
Foxboro Company
Gordon Co Claud S
High Pressure Equip
Industrial Instrument
Karn Chemical Equipt
Leeds & Northrup
M-H Brown Instrs Div
Marshall Instrs
Martin & Co H S
McDanel Refractory
McHugh & Son Raymond F
Moeller Instrument Co
Pacific Transducer Corp
Palmer Thermometers
Pyrometer Co of Amer
Republic Flow Meters
Richards Co Arklay S
Sciaco Controls
Temperature Engrg Corp
Thermo Electric
Trerice Co H O
Trinity Equipment
West Instrument Corp
Weksler Instruments
Wheelco Indus Instrs

TIME RECORDERS, Including Running Time, Operation Time, Time Totalizers, etc.

Abacus Inc
Alden Electronic
Alina Corp
Ameresco Inc
Annis Co R B
Automatic Timing & Contls
Bacharach Indus Instr
Bailey Meter Co
Barnoff & Assocs
Bergen Labs Inc
Bristol Co
Brush Instruments Div
Capeway Instrument
Chrono-Log Corp
Cincinnati Time Recorder
Computer Measurements
Cramer Div
Curtiss Wright
Daystrom/Weston
Dickson Co
Dimco Gray
Ducommun Co M
Edison Industries T A
Electric Tachometer
Electro Autosizing
Electro-Medical Lab
Electronic Controls Inc
Engler Instr
Esterline-Angus
Federal Pacific
Fischer & Porter Co
Foxboro Company
GE Apparatus Sales Div
Gaertner Scientific Corp
Gates Radio Co
General Controls
General Devices
Geotechnical Corp
Gilmore Industries
Haydon Co A W
Hobbs Corp, John W
Houston-Fearless Corp
Impact-O-Graph Corp
Industrial Timer Corp
J-B-T Instruments
Lafayette Instr
Landis & Gyr
M-H Precision Meter Div
Mast Development
Micronics Div
Northeastern Engrg
Parabam Div
Pic Automation Ctls
Presin Co
Princeton Div
Research Industrial Lab
Rockwell Mfg Co
Sheffield Corp
Sierra Research Corp
Simplex Time Recorder
Standard Instrument
Stewart-Warner Corp
Sticht Co Herman
Streeter Amet Co
Stromberg Div
Sunshine Scientific
Thompson Clock Co
U S Gauge Div
Victor Adding Machine
WE-Instr & Control Sys
WacLine Inc
Waltham Precision Instr
Weksler Instruments
Westinghouse Electric

TIME STUDY APPARATUS

Annis Co R B
Automatic Timing & Contls
Baranoff & Assocs
Camera Equipt Co
Chadwick-Helmuth
Chrono-Log Corp
Ducommun Co M
Electronic Controls Inc
Engler Instr
Ercona Corp
Fischer & Porter Co
General Devices
Lafayette Instr
Sanders Laboratories
Soundtronics Labs
Standard Instrument
Tapeswitch Corp

TIMERS, Including Automatic Reset, Cycle Interval (see also Program Controllers)

Abacus Inc
Abrams Instrument
Aemco Inc
Alina Corp
Allen-Bradley
Amglo Corp
Anadex Instruments Inc
Argonaut Assocs
Associated Control
Atkins Technical Inc
Automatic Control Co
Automatic Electric
Automatic Timing & Contls
Autotron Inc
Bald Eagle Corp
Bayside Timers
Beattie Coleman
Beckman/Berkeley Div
Bellows-Valvair
Bendix Utica Div
Bergen Labs Inc
Bernco Engrg Corp
Black Sivalls & Bryson
Borg Instruments
Bowmar Instrument
Brailsford & Co
Branson Corp
Bristol Co
Bulova Research
Bulow Electric
Cadillac Rectifier
Camera Equipment Co
Chrono-Log Corp
Cincinnati Time Recorder
Clark Controller
Computer Measurements
Control Engineering
Control Equipment Corp
Controls Co of Amer
Cooper Development
Cramer Div
Cutler-Hammer
Daystrom/Weston
Designers for Industry
Di/An Controls
Dietz Co Henry G
Dimco-Gray
Dorsett Electronics Inc
Dynatronics Inc
Eagle Signal
Edison Industries T A
Edwards Co
Elastic Stop Nut
Electric Eye Equip
Electro Instruments
Electro Precision
Electro-Seal Corp
Electronic Control
Electronic Counters
Electronic Products
Engler Instr
Erie Pacific
Erie Resistor
Ewald Instruments
Falcon Alarm Co
Farmer Electric
Fischer & Porter Co
Frontier Elx
GE Apparatus Sales Div
GE Gen Purpose Ctl Dept
Gemco Electric Co
General Controls
General Devices
General Mills Inc
General Railway Signal
Gordon Enterprises
Green Rectifier
Hagen Mfg Co
Hamilton Watch Co
Hartman Electrical Mfg
Haydon Co A W
Haydon Div Gen Time
Hobbs Corp John W
Hub-Pot Inc
Iconix Inc

Industrial Electronic
Industrial Timer Corp
International Instrument
International Register

J-B-T Instruments
Johnson Service Co

Karnish Instr Sales

LabLine Inc
Lake City Inc
Lundy Mfg Corp

M-H Military Prods Grp
Machinery Electrification
Mallory & Co P R
Marsh Instr Co
Mast Development
Master Specialties
Micronics Div
Miller-Harris Instr
Minarik Electric
Montgomery Mfg

Natel Engrg Co
Natl Time & Signal
Northeastern Engrg
Nuclear-Chicago
Nucleonic Corp of Amer

Oak Mfg Co
Oxford Engrg Co

Paragon Electric Co
Partlow Corp
Philco Corp
Pic Automation Ctls
Post Electronic
Precision Mechanisms
Precision Prods (Tulsa)
Precision Scientific Co
Presin Co
Protection Controls

Racine & Co Inc Jules
Radiation Instr Dev Lab
Ransom Research
Raymond Engrg Lab
Redford Corp
Research Industrial Lab
Rhodes Inc M H
Rockwell Mfg Co
Rotary Devices Corp
Royson Engrg Co

Sanders Labs
Sangamo Electric Co
Scientific Industries
Seely Instrument
Simplex Time Recorder
Slip Ring Co of Amer
Soundtronics Labs
Spectrol Electronics
Square D Co
Standard Electric Time
Standard Instrument
Stewart-Warner Corp
Streeter Amet Co
Stromberg Div
Sunshine Scientific
Syracuse Electronics

Taylor Instrument Cos
Technology Instr (Mass)
Telechrome Mfg Corp
Tempo Instrument
Thompson Clock Co
Transistor Specialties
Trott Electronics

Ulanet Co George
Unit Process Assemblies
Universal Relay
U S Gauge Div

Vemaline Products
Vol-Shan Electronics

WE-Director Systems
WacLine Inc
Walkirt Co
Waltham Precision Instr
Wang Laboratories
Warco Industries
Waugh Engineering Co
Webcor Inc
Wilson & Co G C
Zenith Electric

TIMERS, Microsecond (see also Counters, Electronic)

Abacus Inc
Allegany Instrument
Allen-Bradley
Applied Science Corp
Argonaut Assocs
Automatic Timing & Contls
Autotron Inc
Beckman/Berkeley Div
Computer Equipment
Computer Measurements

Control Equipment Corp
Control Electronics
Corbett Science Labs
Cramer Div
Curtiss Wright
Designers for Industry
Di/An Controls
Dimco Gray
Dynapar Corp
Eldorado Electronics
Electro Instruments
Electrodynamic Instr
Electronic Engrg Co Calif
Electronic Products
Electronic System Dev
Engineered Electronics
Erie Pacific
Erie Resistor
Farmer Electric
Fischer & Porter Co
Franklin Systems
Frontier Elx
G E Apparatus Sales Div
G-V Controls
General Devices
General Railway Signal
General Time Central Res
Hamilton Watch Co
Hamner Electronics
Hartman Electrical Mfg
Haydon Co A W (Calif)
Haydon Co A W
Hewlett-Packard
Hoover Electronics
Houston-Fearless Corp
Iconix Inc
Librascope Div
Machinery Electrification
Maryland Telecomm
Mast Development
Micronics Div
Monitor Systems Inc
Natel Engrg Co
Natl Time & Signal
Northeastern Engrg
Oxford Engrg Co
Philco Corp
Philips Electronic
Post Electronic
Ransom Research
Soundtronics Labs
Spectrol Electronics
Standard Electric Time
Standard Instrument
Sticht Co Herman
Streeter Amet Co
Sunshine Scientific
Syracuse Electronics
Systron-Donner
Telechrome Mfg Corp
Tempo Instrument
Transistor Specialties
Trott Electronics
Vector Mfg Co
Vemaline Products
Walkirt Co
Webcor Inc

TORQUE CONTROL EQUIPMENT and GAGES

Alina Corp
Automatic Timing & Contls
B & F Instruments
Baldwin-Lima-Hamilton
Bergen Labs Inc
Bulova Research
Bytrex Corp
Chatillon John
Electronic Control
Engis Equipment
Falcon Div
Hamilton Watch Co
Jo Line Tools
Korfund Co
Lebow Associates Inc
Machinery Electrification
Metron Instrument
Paterson Co Stuart D
Performance Measurements
Pitometer Log Corp
Power Instruments Inc
Racine Hydra & Machy
Richmont Inc
Rotiform Co
Sunshine Scientific
Sweeney Mfg Co
Tipptronic Inc
Torque Controls
Unilectron Inc
United Control Systems
Universal Match
Vickers Electric Prods Div
Waters Mfg Inc

TOTALIZERS, Demand

Barnoff & Assocs
Bristol Company
Devar Systems
Disc Instruments
Fischer & Porter Co
GE Apparatus Sales Div
General Time Central Res
Landis & Gyr
Lundell & Co
Monitor Systems Inc
Sangamo Electric Co
Sparling Equipment Div
Victor Adding Machine

TOTALIZERS, Electric Energy

Automation Dev Corp
Barnoff & Assoc
Bristol Co
Computer Measurements
Control Corp
Devar Systems
Fischer & Porter Co
Haydon Instr Co
Landis & Gyr
Leeds & Northrup
Lundell & Co
Northeastern Engrg
Royson Engrg Co
Sangamo Electric Co
Transistor Specialties
Waugh Engineering Co

TURBINE GOVERNORS

Airesearch Mfg Co
Asea Electric Inc
Bailey Co Chas M
GE Specialty Control
Hagan Chem & Controls
Kahn & Co
Kieley & Mueller
Mallory & Co P R
Stratos Div
Varo Mfg Co

ULTRAVIOLET INDICATORS and/or RECORDERS

Analytic Systems
Beckman & Whitley
Bush Associates G F
Daystrom/Weston
DuMont Labs Allen B
Edison Industries T A
Hughes Aircraft
M-H Military Prods Grp
Mine Safety Appliances
Packard Instrument Co
Phoenix Precision Instr
Process & Instruments
Spectra Electronics
Ultra-Violet Products
Western Radiation Lab
Westronics Inc

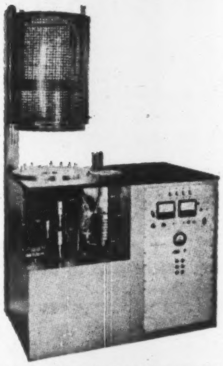
ULTRAVIOLET LIGHT SOURCES

Alfa-American Corp
Amglo Corp
Aristo Grid Lamp
Atlas Electric Devices
Boone Instrument
Bush Associates G F
Chicago Miniature Lamp
Davenport Mfg
Edmund Scientific Co
Engelhard Hanovia
Epic Inc
Gaertner Scientific Corp
Gates & Co Inc
Glass Instruments Inc
Greiner Co Emil
Greiner Glassblowing
Kemlite Labs
M-H Military Prods Grp
MacBeth Inst Corp
Magnaflux Corp
Mico Instr Co
Phoenix Precision Instr
Research Inc
Resistance Prods Co
Spectra Electronics
Stocker & Yale Inc
Strong Electric Corp
Switzer Brothers
Sylvania Lighting Prods
Ultra-Violet Products
WE-Lamp Div
Zeiss Inc Carl

VACUUM APPARATUS, including Pumps

Ace Glass Corp
Air-Shields Inc
Airmatic Valve Inc
Allis-Chalmers
Applied Dynamics
Applied Radiation Corp
Arcweld Mfg Co
Asea Electric Inc
Associated Testing Labs
Beach-Russ Co
Bell & Gossett Co
Bendix Utica Div
Cash Valve Mfg
Central Scientific
Cetron Electronic
Conoflow
Cooke Inc F J
Consol Electrodynamics
Consolidated Vacuum
Cornelius Co
Economy Pump
Electric Hotpack
Elion Instruments
Fisher Scientific Co
Fredericks Co
Gast Mfg Corp
Gelman Instrument Co
General Vacuum Corp
Gits Bros Mfg
Glass Instruments Inc
Granville-Phillips
Green Rectifier
Greiner Co Emil
Greiner Glassblowing
Hastings-Raydist
Hevi-Duty Electric
High Vacuum Equip
Hughes Vacuum Tube
Hunt Valve Co
Ingersoll-Rand Co
Ipsen Industries
Kahn & Co
Kane Engineering Labs
Kinney Vacuum Div
Klinger Scientific
Labglass Inc
Lammert & Mann Co
Langmar Corp
Lansdale Division
Leiman Bros Inc
Martin & Co H S
Milton Roy Co
NRC Equipment
Nash Engineering
National Appliance Co
Nelson Vacuum Pump Co
Nuclear Materials & Equip
Penna Pump & Compressor
Philadelphia Scien Glass
Philco/Lansdale

V.I.C. ... vacuum instrument corporation



4" HIGH VACUUM PUMPING STATION
Type CS-4

Featuring
- ... Unique Processing Port—with Two system connecting flanges
- ... Quick Acting, Fully Valved, & Flanged System
- ... New "Baffle-Trap"—Longer Lasting—More Efficient
- ... New High Speed Diffusion Pump—620 Litters/Sec.
- ... Choice of Vacuum Gauges (Reading as Low as 2 x 10^{-8}mm HG)—Cold Cathode Discharge Gauge or Bayard-Alpert Type Ionization Gauge—Each with two TC gauges.

Send for Free Cat. on complete line of High Vacuum & Leak Detection Equipment.

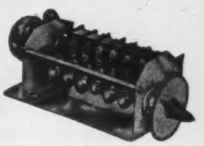
Vacuum Instrument Corporation
Stepar Place, Huntington Station, New York
HAmilton 3-5520

CIRCLE 140 ON READER-SERVICE CARD

Zenith AUTOMATIC CONTROL EQUIPMENT

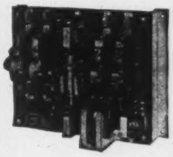
. . . accurate . . . dependable . . .
EASY TO ADJUST

ZENITH MULTI-CIRCUIT CYCLE TIMERS



Specially designed to accurately time any electrical operation. Set for on and off periods with as many circuits as desired. Operation: Cam-driven S.P.-D.T. micro-switch bank with synchronous motor. Also furnished without motor for elevator control, limit switch, etc.

ZENITH AUTOMATIC TRANSFER SWITCHES

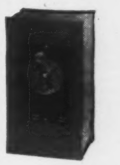


Automatic transfer to emergency source in 1/25th second . . . automatic return to normal voltage when restored. Supplied ac. or dc. Capacities up to 600 amps.

**ZENITH INTERVAL TIMERS—
MANUALLY PRE-SET**

No clock springs to wind or break . . . powerful, self-starting, slow-speed, synchronous motor insures dependable operation. Timing ranges from 1 minute to 120 hours. 115 and 230 volt models. Explosion proof case shown meets National Electrical Code for Class I, Group D., Hazardous Locations. Capacity: 1000 watts.

**ZENITH RESET TIMERS—
AUTOMATIC, REMOTE CONTROL**



Easily pre-set, automatically reset. Synchronous motor opens and closes circuits as preset. May be used as timer in conjunction with standard start-stop push button station. Choice of mountings. Capacity: 1000 watts.

**ZENITH PROCESS TIMER—
with new PERCENTAGE CALIBRATION**

For Hold Fire Control, Mixing Machinery, Testing Equipment, Fans, Heaters, etc. Wide variety of models for all types of adjustable automatic cycle timing. Total time cycle from 15 seconds to 24 hours, with range of adjustability to 94% for ON or OFF periods.

ZENITH AUTOMATIC CONTROL EQUIPMENT

Transfer Switches, Remote Control Switches, Automatic Time Switches, Automatic Reset Switches, Magnetic Contactors, Interval Timers, Process Timers, Program Clocks, Reversing Starters, Impulse Timers. Special Automatic Control Equipment For Special Jobs.

Write For Bulletin A-17. See classified phone directory under Electrical Equipment for Local Representative.

152 W. WALTON ST. CHICAGO 10, ILLINOIS

CIRCLE 141 ON READER-SERVICE CARD

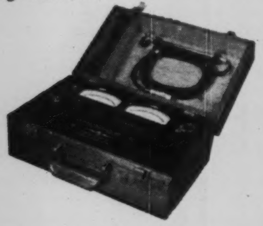
HASTINGS Instruments

Set New Standards for Electrical Measurement of VACUUM, FLOW, PRESSURE and AIR VELOCITY

Hastings instruments, operating on the tried and proven principle of the Hastings Patented Thermopile, offer sensitive, accurate readings with almost instantaneous response. Long instrument life and low maintenance costs are assured since there are no electronic or ballast tubes to burn out, break or fail. The electrical output of the thermopile makes a Hastings instrument ideal for remote indication, control, and recording.

HASTINGS VACUUM GAUGES

Gauges, Controllers and Recorders are available in over 100 models to cover pressure ranges from .2 micron to 200 mm Hg. Choice of single or multi-position instruments, cabinet or panel-mounted. For full details, send for Catalog No. 300.



HASTINGS AIR-METERS

Direct, instantaneous readings for ranges as low as 5 fpm to as high as 200 mph. Directional or horizontally non-directional probes. AC or battery-operated models. For full details send for Catalog No. 400.

HASTINGS MASS FLOW AND DIFFERENTIAL PRESSURE INSTRUMENTS

More than 20 models available. Full scale flow ranges as low as 300 Std cc/min. or differential pressure ranges as low as 0.01 in. H_2O. For full details write for Catalog No. 500.

WRITE FOR FULL INFORMATION ON OUR COMPLETE LINE OF HASTINGS INSTRUMENTS. IF YOU HAVE ANY APPLICATION PROBLEMS, OUR ENGINEERING STAFF WILL BE GLAD TO ASSIST YOU.

HASTINGS-RAYDIST, Inc.

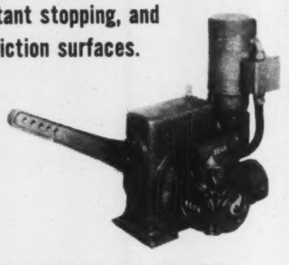
Hampton, Virginia PArk 3-6531

CIRCLE 142 ON READER-SERVICE CARD

BECK

Advanced All-Electric Valve Positioners

Entirely Magnetic Braking gives instant stopping, and eliminates brake shoes, discs, and all friction surfaces.



Torque range 5 lb.ft. to 10,000 lb.ft.
Two position or proportional control
Handwheel for manual operation
Timing range 3 sec/100° to 60 sec/100°

Request Bulletin 2000

HAROLD BECK COMPANY
3640 NORTH SECOND STREET PHILADELPHIA 40, PA.

CIRCLE 143 ON READER-SERVICE CARD

Phillips-Drucker
Precision Scientific Co
Process & Instruments
Red Point Corp
Research Vacuum Supply
Scientific Glass
Smith Inc Arthur F
Soiltest Inc
Temperature Engrg Corp
Tenney Engineering
Turbo Machine Co
Ultek Corp
United Electric Controls
Vacuum-Electronics
Vacuum Instrument
Vacuum Research Co
Varian Associates
Veeco Vacuum
W & W Mfg Co
Welch Mfg Co W M
Wheeler Mfg Co C H

VACUUM GAGES, McLeod

Ace Glass Corp
American Standard
ASEA Electric Inc
Beach-Russ Co
Bristol Company
Central Scientific
Consol Electrodynamics
Consolidated Vacuum
Ellison Draft Gage Co
Fredericks Co
GE Apparatus Sales Div
General Vacum Corp
Greiner Co Emil
Greiner Glassblowing
High Vacuum Equip
Hill & C E Vernon
Hughes Products
Kinney Vacuum Div
Labglass Inc
Manning Maxwell & Moore
Manostat Corp
Marsh Instrument Co
Martin & Co H S
Moeller Instr Co
NRC Equipment
Newark Controls
Nuclear Corp of Amer
Nurnberg Scientific
Relcon Inc
Republic Flow Meters
Rochester Mfg Co
Roger Gilmont Instrs
Scientific Glass App
Smith Inc Arthur F
Temperature Engrg Corp
Vacuum-Electronics
Warren Automatic Control
Weksler Instruments
Welch Mfg Co W M

VACUUM, HIGH (below lmu) CONTROLLERS, INDICATORS, and RECORDERS

Alfred Electronics
Applied Radiation Corp
Associated Valve Co
Automatic Timing & Contls
Barber-Colman
Beach-Russ Co
Bristol Co
Cash Co A W
Central Electronic Mfgrs
Central Scientific
Consol Electrodynamics
Consolidated Vacuum
Cooke Inc F J
Daystrom/Weston
Elion Instruments
Ellison Draft Gage
Fischer & Porter Co
Fredericks Co
Fulton Sylphon Div
General Controls
General Vacuum Corp
Green Rectifier
Greiner Co Emil
Hastings-Raydist
High Vacuum Equip
Hughes Vacuum Tube
Leslie Co
M-H Apparatus Contls Div
M-H Brown Instrs Div
Martin & Co H S
NRC Equipment

Nuclear Corp of Amer
Nuclide Analysis Assoc
Process & Instruments
Radiation Research Corp
Research Industrial Lab
Smith Inc Arthur F
Swartout Div
Temperature Engrg Corp
Trans-Sonics
Uehling Instrument
United Electric Controls
Vacuum-Electronics
Vacuum Instrument
Welch Mfg Co W M
Westronics Inc
Wheelco Indus Instrs
Winslow Electronics Inc

VACUUM CONTROLLERS, INDICATORS and/or RECORDERS

Asea Electric Inc
Automatic Timing & Contls
Bailey Co Chas M
Bailey Meter Co
Barber-Colman
Bristol Co
Cash Valve Mfg
Conoflow
Consol Electrodynamics
Consolidated Vacuum
Cooke Inc F J
Crosby-Ashton
Daystrom/Weston
Dickson Co
Ellison Draft Gage
Esterline-Angus
Fischer & Porter Co
Fisher Governor Co
Fredericks Co
Fulton Sylphon Div
GE Appartus Sales Div
G E Gen Purpose Ctl Dept
GPE Controls
General Controls
General Dynamics/Elx
General Vacuum Corp
Green Rectifier
Hagan Chem & Controls
Hass Instr Corp
Hastings-Raydist Inc
Hays Corporation
Helicoid Gage Div
Hughes Vacuum Tube
International Register
Kieley & Mueller
Leslie Co
M-H Brown Instrs Div
Manning Maxwell & Moore
Martin & Co H S
Mason Neilan
Meriam Instr Co
Moore Products Co
Murphy Mfg Inc
NRC Equipment
Norwood Controls
Nuclear Corp of Amer
Precision Thermometer
Republic Flow Meters
Research Industrial Lab
Scientific Instrument
Servonic Instruments
Smith Inc Arthur F
Specialties Inc
Square D Co
Swartwout Div
Taylor Instrument Cos
Temperature Engrg Corp
Tipptronic Inc
Trans-Sonics Inc
Trerice Co H O
Uehling Instrument
Ultradyne Inc
Vacuum-Electronics
Veeco Vacuum

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get complete engineering data:

NEW ADVANCED-DESIGN VALVES AND REGULATORS

Leslie-Topper self contained pressure reducing valve has mechanical piloting device entirely out of steam path. For process lines, steam heat reducing stations, make-up steam to heaters, gland sealing system, process equipment. Reduced pressure ranges, 2 to 35 PSI.

CIRCLE 396 ON READER-SERVICE CARD

Air loaded reducing valve with 3-year no-maintenance guarantee. For steam heat or process steam applications. Only two moving parts; ideal for poor steam conditions and standby service. Handles pressures to 300 PSI, 450°F. Sizes ½" to 4".

CIRCLE 397 ON READER-SERVICE CARD

Air or gas pressure reducing valve—air loaded. For pressures to 125 PSIG. Only 2 moving parts; metal diaphragm, dependable packless construction.

CIRCLE 398 ON READER-SERVICE CARD

Temperature regulator for inlet pressures to 100 PSI, 450°F. Single-seated, fully balanced disc. Parts quickly interchangeable in the field. For instantaneous heaters or coolers, and process heaters and coolers of all types. Sizes ¾" and 1".

CIRCLE 399 ON READER-SERVICE CARD

Water pressure reducing valve eliminates process loss and water waste. Provides close reduced liquid pressure control under widely varying load conditions.

CIRCLE 400 ON READER-SERVICE CARD

LESLIE

REGULATORS and CONTROLLERS

LESLIE CO., 704 Grant Ave., Lyndhurst, New Jersey

Wallace & Tiernan
Weksler Instruments
Welch Mfg Co W M
Westronics Inc
Wheelco Indus Instrs

VALVE OPERATING DEVICES, Electric Motor

Allenair Corp
Allis-Chalmers
Automatic Timing & Contls
Automation Dev Corp
Beck Co Harold
B-I-F Industries
Bristol Co
Cash Valve Mfg
Conoflow
Consolidated Vacuum
DeZurik Corp
Electrodynamic Instr
Electro-Mech
GE Appartus Sales Div
General Controls
General Regulator Corp
Hammel-Dahl/Foster Engrg
Hays Corp
Herion Inc
High Pressure Equip
Hills-McCanna
Hydel Inc
Hydro-Aire Co
Jamesbury Corp
Johnson Service Co
Jordan Controls
Keckley Co O C
Kingston Industries
Leeds & Northrup
Loe Engrg Co
Lundy Mfg Corp
M-H Apparatus Contls
M-H Brown Instrs Div
M-H Valve Div
Mason Neilan
Maxon Premix Burner Co
Midwestern Instr
Nash Controls Inc
New England Gear Works
Parker Aircraft Co
Philadelphia Gear Corp
Pneu-Hydro Valve
Power Controls Div
Republic Flow Meters
Rockwell Mfg Co
Rockwood Sprinkler
Schade Valve Mfg Co
Standard Instrument
Talley Corp
Texas Instruments Inc
United Control Systems
United Electric Controls
Vinson Engrg & Sales
Vinson Systems
Wheelco Indus Instrs
Wheeler Mfg Co C H

VALVE OPERATING DEVICES, Hydraulic, including Cyl,nder

Acme Industrial Co
Aeronaut & Instr Div
Airborne Research & Dev
Airmatic Valve Inc
Allenair Corp
Allis-Chalmers
Amer Meas & Control
Annin Company
Ardwin Industries Inc
Atwood & Morrill Co
Auto Control Labs
Autoclave Engineers
Automatic Switch Co
B-I-F Industries
Barworth Inc
Bellows-Valvair
Bendix Utica Div
Bimba Mfg Co
Bobrick Aero Missile
Boonshaft and Fuchs
Brown & Sharpe Mfg Co
Buffalo Hydraulics Div
Cash Co A W
Cash Valve Mfg
Clary Corp
CompuDyne Corp
Consolidated Vacuum
Dahl Co G W
Defender Instrument
Denison Engrg Div
DeZurik Corp
Eastern Industries
Electric Eye Equip
Ferguson Hille
Fisher Governor Co
Flow Systems Inc
Fluid Controls
Fluid Power Access
Galland-Henning Mfg
General Controls
General Regulator
Grove Valve & Regulator
Hagan Chem & Controls
Herion Inc
High Pressure Equip
Hills-McCanna
Hunt Valve Co
Hydra-Power Corp
Hydro-Aire Co
IMC Magnetics
Jamesbury Corp
Keckley Co O C
Kenett Corp
Kieley & Mueller
Ledeen Inc
M-H Industrial Controls
M-H Valve Div
Manning Maxwell & Moore
Mason Neilan
Midwestern Instrs
Model Engrg
North American Mfg
Oilgear Co
Pantex Valve Actuators
Parker Aircraft Co
Parks-Cramer Co
Pegasus Labs
Philadelphia Gear Corp
Pic Automation Ctls
Pneu-Hydro Valve
Putnam Co
RKL Valve & Mfg
Racine Hydra & Machy
Republic Flow Meters
Research Controls
Rivett Lathe & Grinder
Rockwell Mfg Co
Ronson Hydraulic Units
Rucker Co
Santa Fe Instruments
Schade Valve Mfg Co
Schrader's Son Div
Security Valve Co
Sierra Engineering
Stratos Div
Taylor Instrument Cos
True-Flow Valve
United Aircraft Prods
United Control Systems
Vickers-A & E Center
Vinson Engrg & Sales
Vinson Systems
Weatherhead Co
Westinghouse Air Brake
Weston Hydraulics Ltd

VALVE OPERATING DEVICES, Pneumatic, including Cylinder

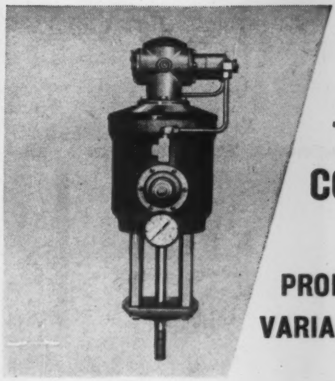
Airborne Research & Dev
Airmatic Valve Inc
Allenair Corp
Allis-Chalmers
American Meter Co
Anderson Greenwood & Co
Annin Co
Arkwin Industries Inc
Associated Valve Co
Atwood & Morrill Co
Auto Control Labs
Automatic Switch Co
Automatic Valve Co
B-I-F Industries
Bailey Meter Co
Barworth Inc
Bellows-Valvair
Bendix Utica Div
Bimba Mfg Co
Black Sivalls & Bryson
Bobrick Aero Missile
Bristol Co
California Controls
Cash Co A W
Cash Valve Mfg
Clary Corp
Conoflow
Consolidated Vacuum
Dahl Co Geo W
DeZurik Corp
Dole Valve Co
Edwards Valves Inc
Ferguson Hille
Fielden Electronics
Fisher Governor
Flow Systems Inc
Foster Engineering Div
Foxboro Company
Fulton Sylphon Div
GPE Controls
Galland-Henning Mfg
General Controls
General Regulator
Grinnell Co
Grove Valve & Regulator
Hagan Chem & Controls
Hammel-Dahl/Foster Engrg
Hankison Corp
Hannifin Co
Haveg Industries
Herion Inc
High Pressure Equip
Hills-McCanna
Humphrey Products Div
Hunt Valve Co
Hydra-Power Corp
Hydro-Aire Co
Jamesbury Corp
Johnson Service Co
Keckley Co O C
Kidde Aero Space Div
Kieley & Mueller
Ledeen Inc
Leslie Co
Loe Engrg Co
M-H Apparatus Contls
M-H Brown Instrs Div
M-H Valve Div
Marotta Valve
Mason Neilan
Model Engrg
Modernair Corp
Moore Products Co
North American Mfg
OPW-Jordan
Pantex Valve Actuators
Parker Aircraft Co
Parks-Cramer Co
Partlow Corp
Philadelphia Gear Corp
Pic Automation Ctls
Pneu-Hydro Valve
Powers Regulator
Propulsion Dev Labs
Putnam Co
RKL Valve & Mfg
Republic Flow Meters
Research Controls
Rivett Lathe & Grinder
Rockwell Mfg Co
Ronson Hydraulic Units
Ross Operating Valve
Rucker Co
Santa Fe Instruments
Schade Valve Mfg Co
Schrader's Son Div
Scott Aviation Corp
Security Valve Co
Seely Instrument
Stratos Div
Swartwout Div
Talley Corp
Taylor Instrument Cos
True-Flo Valve
United Aircraft Prods
United Control Systems
Vacuum Research Co
Vinson Systems
Weatherhead Co
Westinghouse Air Brake
Weston Hydraulics Ltd

VALVE OPERATING DEVICES, Solenoid

Acme Industrial Co
Aero Supply Mfg
Airborne Research & Dev
Airmatic Valve Inc
Allenair Corp
Altair Inc
Amer Meas & Control
Arkwin Industries Inc
Astromics Div
Atkomatic Valve
Automatic Switch Co
Automatic Timing & Contls
Automatic Valve Co
B-I-F Industries
Bellows-Valvair
Bendix Utica Div
Bobrick Aero Missile
Brown & Sharpe Mfg Co
Caltron Products Co
Carruthers & Fernandez
Carter Company J C
Clary Corp
Conoflow
Consolidated Vacuum
Detroit Controls
Dole Valve Co
Ferguson Hille
Fluid Power Access
Foxboro Company
G E Gen Purpose Ctls Dept
Galland-Henning Mfg
General Controls
General Kinetics
General Regulator
Great Lakes Mfg
Grove Valve & Regulator
Guardian Electric
Hamilton Standard Div
Hammel-Dahl/Foster Engrg
Haveg Industries
Herion Inc
Hills-McCanna
Hoke Inc
Hoover Electric Co
Humphrey Products Div
Hunt Valve Co
Hydra-Power Corp
Hydro-Aire Co
IMC Magnetics
Johnson Corp
Keckley Co O C
Kellogg Switchboard
Kennett Corp
Kidde Aero Space Div
Koontz-Wagner Elec
Ledeen Inc
Lisk Co G W
M-H Industrial Controls
Marotta Valve
McDonnell & Miller
Midwestern Instrs
Modernair Corp
Norwood Controls
OPW-Jordan
Pantex Valve Actuators
Parker Aircraft Co
Pegasus Labs
Philadelphia Gear Corp
Plug-In Instrument Inc
Pneu-Hydro Valve
Propulsion Dev Labs
Rivett Lathe & Grinder
Ronson Hydraulic Units
Ross Operating Valve
Schrader's Son Div
Scott Aviation Corp
Security Valve Co
Servotronics Inc
Skinner Elec Valve
Stratos Div
Talley Corp
United Aircraft Prods
United Control Systems
Valcor Engrg Corp
Vickers-A & E Center
Vickers Inc
Vinson Systems
Westinghouse Air Brake
Weston Hydraulics Ltd

VALVE POSITIONERS

Aeronaut & Instr Div
Airesearch Mfg Co
Annin Co
Automation Dev Corp
B-I-F Industries
Bailey Meter Co
Barber-Colman
Beck Co Harold
Black Sivalls & Bryson
Bristol Co
Cash Co A W
Conoflow
Consol Controls
Detroit Controls
Electric Regulator
Ferguson Hille
Fischer & Porter Co
Fisher Governor
Foxboro Company
Fulton Sylphon Div
GPE Controls
General Controls
General Kinetics
General Regulator
Grinnell Co
Hagan Chem & Controls
Hammel-Dahl/Foster Engrg
Haveg Industries
High Pressure Equip
Hills-McCanna
Hoover Electric Co
Hydra-Power Corp
Hydraulic Controls Co
Hydromatics Inc
Johnson Service Co
Jordan Controls
Kieley & Mueller



SWITCH TO AUTOMATIC THROTTLING CONTROL FOR...

VALVES
PROPORTIONING PUMPS
VARIABLE SPEED DRIVES
ETC.

Conoflow Series 50 Cylinder Conomotor is widely used on control valves, butterfly valves, pulp stock valves, proportioning pumps, motor driven speed changers, rheostats, etc. It provides automatic throttling control for these and many other types of processing equipment previously limited to manual operation. The Cylinder Conomotor is a powerful, fast, pneumatic actuator capable of matching today's high-performance instrument systems.

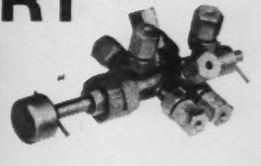
Bore diameters from 3" to 12.5". Travels to 24". Develops thrusts better than 12,000 lbs. in either direction. Holds loads to within .002" per inch of stem travel. Look into its potential for your equipment.

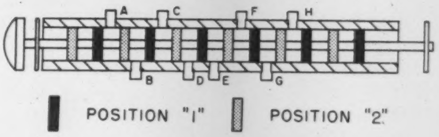
Write for Bulletin B-50.

CC 103

CONOFLOW CORPORATION
FOREMOST IN FINAL CONTROL ELEMENTS
2100 ARCH STREET, PHILADELPHIA 3, PA.

CIRCLE 145 ON READER-SERVICE CARD





MULTI-PORT SWITCH VALVES

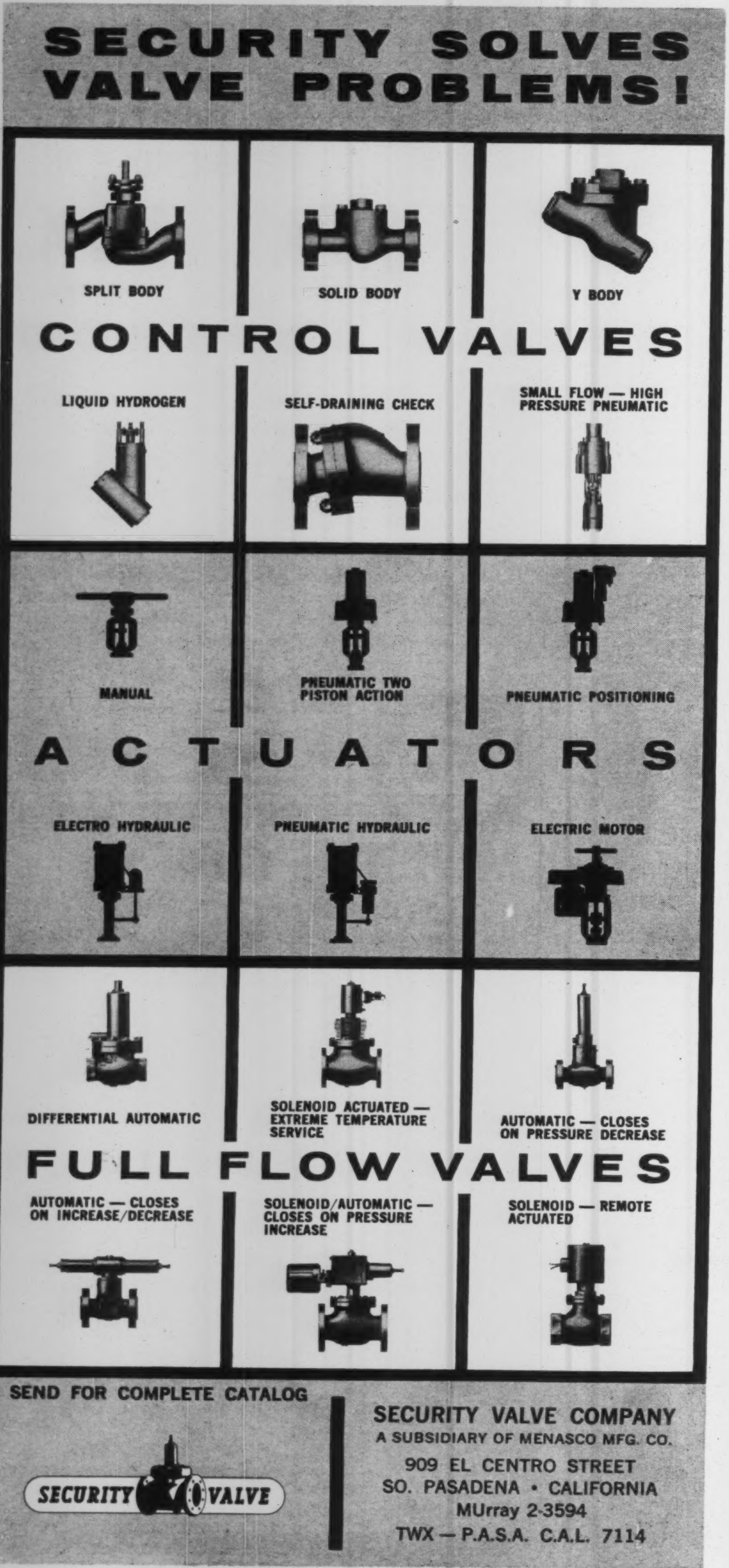
- **GAS CHROMATOGRAPHY**
  - Column Reverse
  - Column Switch-out
  - Column Selection
  - Reproducible Volume Sampling
- **PNEUMATIC SIGNAL SWITCHING**
- **HYDRAULIC SIGNAL SWITCHING**

6 or 8 Ports • Stainless Steel Construction
• Automatic Valve Actuators Available

Write for Brochure LOE-4 for Details & Pricing.

LOENCO LOE ENGINEERING COMPANY
2092 North Lincoln Avenue, Altadena, California

CIRCLE 146 ON READER-SERVICE CARD


SECURITY SOLVES VALVE PROBLEMS!
SPLIT BODY
SOLID BODY
Y BODY
CONTROL VALVES
LIQUID HYDROGEN
SELF-DRAINING CHECK
SMALL FLOW — HIGH PRESSURE PNEUMATIC
MANUAL
PNEUMATIC TWO PISTON ACTION
PNEUMATIC POSITIONING
ACTUATORS
ELECTRO HYDRAULIC
PNEUMATIC HYDRAULIC
ELECTRIC MOTOR
DIFFERENTIAL AUTOMATIC
SOLENOID ACTUATED — EXTREME TEMPERATURE SERVICE
AUTOMATIC — CLOSES ON PRESSURE DECREASE
FULL FLOW VALVES
AUTOMATIC — CLOSES ON INCREASE/DECREASE
SOLENOID/AUTOMATIC — CLOSES ON PRESSURE INCREASE
SOLENOID — REMOTE ACTUATED
SEND FOR COMPLETE CATALOG
SECURITY VALVE
SECURITY VALVE COMPANY
A SUBSIDIARY OF MENASCO MFG. CO.
909 EL CENTRO STREET
SO. PASADENA • CALIFORNIA
MUrray 2-3594
TWX — P.A.S.A. C.A.L. 7114

CIRCLE 147 ON READER-SERVICE CARD

Ledeen Inc
Leeds & Northrup
Manning Maxwell & Moore
Mason Neilan
Model Engrg
Moore Products Co
OPW-Jordan
Pantex Valve Actuators
Parker Aircraft Co
Pegasus Labs
Philadelphia Gear Corp
Pneu-Hydro Valve
Powers Regulator
Redford Corp
Reliance Instr Mfg
Republic Flow Meters
Rivett Lathe & Grinder
Rockwell Mfg Co
Rotiform Co
Security Valve Co
Syracuse Electronics
Taylor Instrument Cos
Tejax Engineering Corp
United Aircraft Prods
United Control Systems
U S Gauge Div
Weatherhead Co
Westinghouse Air Brake
Weston Hydraulics Ltd
Wheelco Indus Instrs

VALVES, Ball

Allis-Chalmers
Airborne Research & Dev
Airmatic Valve Inc
Amer Standard Controls
Autoclave Engineers
Clary Corp
Consol Controls
Consolidated Vacuum
Coors Porcelain
Fluid Controls
Futurecraft Corp
General Controls
General Kinetics
Greiner Glassblowing
Harco Labs
Herion Inc
Hills-McCanna
Hoke Inc
Homestead Valve Mfg Co
Hydra-Power Corp
Hydro-Aire Co
Hydromatics Inc
Imperial-Eastman Corp
Jamesbury Corp
Parker Aircraft Co
Putnam Co
R P and C Valve Div
Rockwell Mfg Co
Rockwood Sprinkler
Simmonds Precision Prods
Stratos Div
True-Flo Valve
Vickery Co
Weatherhead Co
Weston Hydraulics Ltd
Worcester Valve Co

VALVES, Butterfly

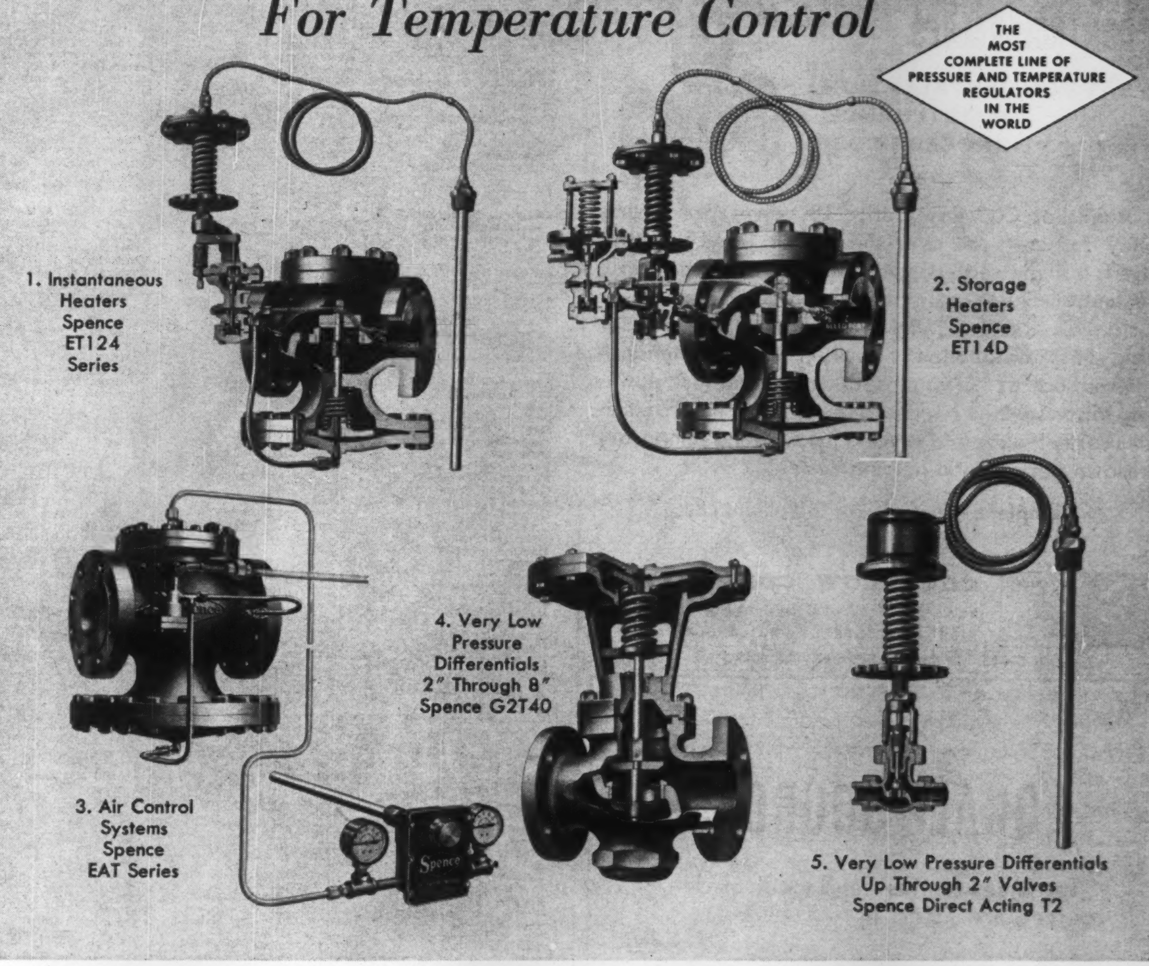
Aero Supply Mfg
Airesearch Mfg Co
Allis-Chalmers
B I F Industries
Black Sivalls & Bryson
Bobrick Aero Missile
Carter Company J C
Clary Corp
Conoflow
Davis Regulator
Dole Valve Co
Edmund Scientific Co
Engelhard Industries
Fisher Governor Co
Futurecraft Corp
Galland-Henning Mfg
General Controls
Hagan Chem & Controls
Hamilton Standard Div
Hammel-Dahl/Foster Engrg
Harco Labs
Hills-McCanna
Hydro-Aire Co
Johnson Service Co
Keystone Valve Corp
M-H Valve Div
Mason Neilan
North American Mfg
Parker Aircraft Co
Republic Flow Meters
Rockwell Co, W S
Schade Valve Mfg Co
Sensitive Research Inst
Stratos Div
Talley Corp
Trerice Co H O
United Control Corp
Vinson Engrg & Sales
Vinson Systems
Weatherhead Co

VALVES, Control

Acme Industrial Co
Adel Precision Prods
Aero Supply Mfg
Aerotec Industries
Airborne Research & Dev
Airesearch Mfg Co
Airmatic Valve Inc
Allenair Corp
Allis-Chalmers
Amer Meas & Control
Amer Standard Controls
Amot Controls Corp
Anderson Greenwood & Co
Annin Co
Arkwin Industries Inc
Associated Valve Co
Astromics Div
Atlas Valve Co
Atwood & Morrill Co
Autoclave Engineers
Automatic Switch Co
Automatic Valve Co
B-I-F Industries
Bailey Co Chas M
Bailey Meter Co
Barber-Colman
Barksdale Valves
Barworth Inc
Bellows-Valvair
Bendix Utica Div
Black Sivalls & Bryson
Bobrick Aero Missile
Bristol Co
Brown & Sharpe Mfg Co
Cardair Div
Carter Company J C
Cash Co A W
Cash Valve Mfg
Clary Corp
Combination Pump Valve
Conoflow
Consolidated Vacuum
Continental Equipment
Control Technology
Controls Co of Amer
Cornelius Co
Dahl Co Geo W
Daniel Orifice Fitting
Davis Regulator
Defender Instrument
Denison Engrg Div
Deutsch Co
DeZurik Corp
Dragon Engrg Co
Eastern Industries
Eclipse Fuel Engrg
Edward Valves Inc
Electric Regulator
Electro-Mech
Energy Kontrols
Ferguson Hille
Fischer & Porter Co
Fisher Governor
Flow Systems Inc
Fluid Controls
Fluid Mechanisms
Fluid Power Access
Foxboro Company
Fulton Sylphon Div
Futurecraft Corp
Galland-Henning Mfg
General Controls
General Kinetics
Golden Anderson
Granville-Phillips
Grove Valve & Regulator
Hagan Chem & Controls
Hamilton Standard Div
Hamilton-Thomas
Hammel-Dahl/Foster Engrg
Hannifin Co
Haveg Industries
Hays Mfg Co
Henry Valve Co
Herion Inc
High Pressure Equip
Hills-McCanna
Hoke Inc
Hoover Electric Co
Humphrey Products Div
Hunt Valve Co
Hydra-Power Corp
Hydro-Aire Co
Hydromatics Inc
Imperial Brass Mfg
Imperial-Eastman Corp
Industrial Engrg Corp
Infilco Inc
Instr Development Co
Instrument Inc
Jamesbury Corp
Johnson Service Co
Keckley Co O C
Kerotest Mfg Co
Kidde Aero Space Div
Kieley & Mueller
Klipfel Valves
Kohler Co
Koontz-Wagner Elec
Ledeen Inc
Leonard Inc Wallace O
Leslie Co
Linear Controls
M-H Industrial Controls
M-H Valve Div
Marotta Valve
Mason Neilan
McDonnell & Miller
McIlvaine O T
Midwestern Instr
Model Engrg
Modernair Corp
Nicholson & Co W H
Norgren Co C A
North American Mfg
OPW-Jordan
Oilgear Co
Parker Aircraft Co
Parker-Hannifin Corp
Parks-Cramer Co
Partlow Corp
Permutit Co
Petrometer Corp
Phillips & Co H A
Pic Automation Ctls
Pneu-Hydro Valve
Powers Regulator
Propulsion Dev Labs
RKL Controls
Racine Hydra & Machy
Reliance Instr Mfg
Republic Flow Meters
Research Controls
Rivett Lathe & Grinder
Robbins Aviation
Robertshaw-Fulton Contl
Rockwell Co, W S
Rockwell Mfg Co
Ronson Hydraulic Units
Ross Operating Valve
Sanders Associates
Schade Valve Mfg Co
Scott Aviation Corp
Security Valve Co
Seely Instrument
Servotronics Inc
Shand and Jurs
Sierra Engineering
Simmonds Aerocessories

VALVE TIPS:

How to Select Automatic Regulating Valves For Temperature Control


THE MOST COMPLETE LINE OF PRESSURE AND TEMPERATURE REGULATORS IN THE WORLD
1. Instantaneous Heaters Spence ET124 Series
2. Storage Heaters Spence ET14D
3. Air Control Systems Spence EAT Series
4. Very Low Pressure Differentials 2" Through 8" Spence G2T40
5. Very Low Pressure Differentials Up Through 2" Valves Spence Direct Acting T2
Spence

During the past year, our field representatives have reported many cases of improperly, and uneconomically, applied temperature regulators. To help you avoid some of these costly mistakes, here are a few tips on selecting the most effective and economical temperature regulating valves for your applications.

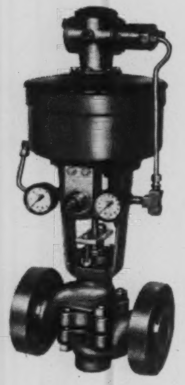
1. Instantaneous heaters require a special action for close temperature control and freedom from hunting. In the Spence ET124 series, steam pressure is modulated according to temperature (demand) and is automatically regulated at any pressure established by the demand.
2. Storage heaters, on the other hand, are more economically controlled by the Spence ET14D, which includes a simple temperature-actuated pilot that opens and closes the main valve to maintain a constant temperature.
3. Air control systems can now have a ±5°F control accuracy under wide and instantaneous load swings with the Spence EAT regulator. Engineers report savings of up to 50% in installed costs with this recently developed Spence cascade system when it has been used in place of conventional instrumentation.
4. For the combination of very low pressure differentials and air or water control, Spence recommends Type G2T40. This single seated valve provides fast, positive response in 2" through 8" valves. Double seat Type G22 is also available in 10" through 12".
5. When very low pressure differential is encountered with valves of 2" or less, the Spence direct operated T2 is recommended. The sensitive vapor tension thermostat responds quickly to small changes in bulb temperature for continuous, accurate control.

CIRCLE 148 ON READER-SERVICE CARD

In this brief description of industrial process and heating temperature control, we have given a few important tips in proper regulator selection. If you would like more detailed information on these control applications, write for the new Spence Temperature Control Bulletin IV 1014. SE-150

SPENCE ENGINEERING COMPANY, INC.
Walden 1, N. Y.
Paulsen Spence, P. E., President

SAVE 3 WAYS WITH
CONOFLOW SERIES LB
CONTROL VALVES



SAVE ON: INSTALLATION
MAINTENANCE
PROCESS LOSS

Thousands of Conoflow Series LB valves are saving money for users all over the world. The LB control valve is a single-seated, split-body valve with powerful pneumatic cylinder actuator. Time-proved design offers substantial savings . . . lightweight and compact for quick, easy installation . . . built-in low maintenance features such as "lift-out" seat ring mean less downtime, labor savings . . . guaranteed tight shutoff eliminates costly leakage of process fluids during temporary shutdown periods and holding cycles.

Complete specifications in Bulletin LB.

CC 107

CONOFLOW SUBSIDIARY WALWORTH

CONOFLOW CORPORATION
FOREMOST IN FINAL CONTROL ELEMENTS
2100 ARCH STREET, PHILADELPHIA 3, PA.

CIRCLE 149 ON READER-SERVICE CARD

LOCAL SOURCES

for measurement and control devices are listed in

YOUR
I&CS
BUYERS'
GUIDE

Service-minded "manufacturers' reps", listed in the Directory Section, can save you time, sweat, and tears on many a project.

Simmonds Precision Prod
Smith Corp A O
Spence Engrg Co
Standard Instrument
Strahman Valves
Stratos Div
Taylor Instrument Cos
Tejax Engineering Corp
Texas Instruments Inc
Trerice Co H O
True-Flo Valve
Uniflow Valve
United Aircraft Prods
United Control Corp
United Control Systems
Universal Match
Valcor Engrg Corp
Vanton Pump & Eqpt Corp
Vapor Heating Corp
Vapor Recovery Systems
Versa Products Co
Vickers A & E Center
Vinson Engrg & Sales
Vinson Systems
Warren Automatic Control
Weatherhead Co
Westinghouse Air Brake
Weston Hydraulics
Whitey Res Tool Co

VALVES, Diaphragm Seal, including Saunders Patent, Crane, Wynn Type, etc.

Airborne Research & Dev
Airmatic Valve Inc
Annin Company
Associated Valve Co
Automatic Switch Co
Barworth Inc
Bellows-Valvair
Black Sivalls & Bryson
Bristol Co
Cash Co A W
Cash Valve Mfg
Conoflow
Cornelius Co
Dahl Co Geo W
Davis Regulator
Dole Valve Co
Farris Engineering
Fischer & Porter Co
GRS Corp
General Controls
Grinnell Co
Grove Valve & Regulator
Hamilton-Thomas
Haveg Industries
Henry Valve Co
Herion Inc
Hills-McCanna
Hoke Inc
Homestead Valve Mfg Co
Humphrey Products Div
Hunt Valve Co
Hydro-Aire Co
Imperial Brass Mfg
Imperial-Eastman Corp
Instruments Inc
Keckley Co O C
Kerotest Mfg Co
Kieley & Mueller
Leslie Co
M-H Valve Div
Mason Neilan
Model Engrg
Modernair Corp
Nuclear Matls & Equip
Oilgear Co
Parker Aircraft Co
Pneu-Hydro Valve
Porter Inc George K
Powers Regulator
Research Controls
Rockwell Co, W S
Smith Corp A O
Stratos Div
Taylor Instrument Cos
Uniflow Valve
United Aircraft Pords
Vacum-Electronics
Valcor Engrg Corp
Warren Automatic Control
Weatherhead Co
Westinghouse Air Brake

VALVES, FLEXIBLE SLEEVE

Airmatic Valve Inc
Farris Engineering
Fisher Governor
Grove Valve & Regulator
Haveg Industries
International Instrument
Oilgear Co
Parker Aircraft Co
Pneu-Hydro Valve
RKL Controls
Red Jacket Co
Simmonds Precision Prods
United Aircraft Prods

VALVES, Float-operated

Aero Supply Mfg
Aerotec Industries
Associated Valve Co
Atlas Valve Co
Atwood & Morrill Co
Bailey Co Chas M
Barworth Inc
Black Sivalls & Bryson
Cash Co A W
Clark Mfg
Continental Equipment
Davis Regulator
Defender Instrument
DeZurik Corp
Fisher Governor
Foster Engineering Div
Fulton Sylphon Div
Futurecraft Corp
General Controls
Golden Anderson
Grove Valve & Regulator
Hamilton-Thomas
Hammel-Dahl/Foster Engrg
Haveg Industries
Hoke Inc
Hydro-Aire Co
Instruments Inc
James Pond & Clark
Jo-Bell Products
Keckley Co O C
Kieley & Mueller
Klipfer Valves
Martin & Co H S
Mason Neilan
McDonnell & Miller
Model Engrg
Parker Aircraft Co
Phillips & Co H A
Pneu-Hydro Valve
Revere Corp of Amer
Robertshaw-Fulton Contl
Rockwell Co, W S
Schade Valve Mfg Co
Simmonds Aerocessories
Spence Engrg Co
United Aircraft Prods
Vinson Systems
Warren Automatic Control
Wilkerson Corp

VALVES, Gage Cocks

Amer Standard Controls
Anderson Greenwood & Co
Associated Valve Co
Braun-Knecht-Heimann
Dahl Co G W
Defender Instrument
Detroit Controls
Dragon Engineering Co
Edward Valves Inc
GRS Corp
Grove Valve & Regulator
Haveg Industries
Hoke Inc
Homestead Valve Mfg Co
Keckley Co O C
Kunkle Valve Co
Manning Maxwell & Moore
Marsh Instr Co
Oilgear Co
Parker Aircraft Co
Pneu-Hydro Valve
Republic Flow Meters
Rockwell Mfg Co
Strahman Valves
Trerice Co H O
Uehling Instrument
Weatherhead Co

VALVES, High Pressure

Acme Industrial Co
Aero Supply Mfg
Aerotec Industries
Airborne Research & Dev
Allis-Chalmers
Altair Inc
Amer Standard Controls
Anderson Greenwood & Co
Annin Co
Arkwin Industries Inc
Associated Valve Co
Astromics Div
Atkomatic Valve
Atlas Valve Co
Atwood & Morrill Co
Autoclave Engineers
Automatic Switch Co
Bailey Co Chas M
Barber-Colman
Barksdale Valves
Barworth Inc
Bastian Blessing Co
Bendix Utica Div
Black Sivalls & Bryson
Blackhawk Mfg Co
Bobrick Aero Missile
Braun-Knecht-Heimann
Brown & Sharpe Mfg Co
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Carter Company J C
Cash Co A W
Cash Valve Mfg
Circle Seal Products
Combination Pump Valve
Clary Corp
Conoflow
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Dahl Co Geo W
Daniel Orifice Fitting
Davies Brothers
Davis Regulator
Denison Engrg Div
Detroit Controls
Deutsch Co
Dragon Engineering Co
Edward Valves Inc
Electric Autolite
Farris Engineering
Fisher Governor
Flow Systems Inc
Fluid Controls
Fluid Mechanisms
Fluid Power Access
Foster Engineering Div
Fulton Sylphon Div
Futurecraft Corp
Gar Precision Parts
General Controls
General Kinetics
Golden Anderson
Gould Company J D
Greer Hydraulics Inc
Grove Valve & Regulator
Hamilton-Thomas
Hammel-Dahl/Foster Engrg
Haveg Industries
Herion Inc
High Pressure Equip
Hills-McCanna
Hoke Inc
Homestead Valve Mfg Co
Hunt Valve Co
Hydra-Power Corp
Hydraulic Controls Co
Hydro-Aire Co
IMC Magnetics
Imperial-Eastman Corp
Industrial Instruments
Instruments Inc
James Pond & Clark
Jamesbury Corp
Johnson Service Co
Kahn & Co
Keckley Co O C
Kenett Corp
Kerotest Mfg Co
Kidde Aero Space Div
Kieley & Mueller
Klipfel Valves
Koontz-Wagner Elec
Leonard Inc Wallace O
Leslie Co
Lisk Co G W
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Manning Maxwell & Moore
Marotta Valve
Marsh Instr Co
Martin-Decker Corp
Mason Neilan
Mercoid Corp
Model Engrg
Norgren Co C A
Oilgear Co
Parker Aircraft Co
Parker-Hannifin Corp
Pnew-Hydro Valve
Pressure Products Indust
Putnam Co
Racine Hydra & Machy
Republic Flow Meters
Republic Mfg Co
Research Controls
Rivett Lathe & Grinder
Robbins Aviation
Rockwell Mfg Co
Rockwood Sprinkler
Ronson Hydraulic Units
Rucker Co
Ruska Instrument Corp
Scott Aviation Corp
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Seely Instrument
Simmonds Aerocessories
Simmonds Precision Prods
Spence Engrg Co
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Uehling Instrument
Uniflow Valve
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Edward Valves Inc
Futurecraft Corp
Gar Precision Parts
GRS Corp
General Controls
Haveg Industries
Hetherington & Berner
Hoke Inc
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Imperial-Eastman Corp
James Pond & Clark Inc
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Leslie Co
Marotta Valve
Mueller Co
Oilgear Co
Parker Aircraft Co
Parks-Cramer Co
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Republic Mfg Co
Robbins Aviation
Rockwell Mfg Co
Seely Instrument
Simmonds Aerocessories
Simmonds Precision Prods
Taylor Instrument Cos
United Aircraft Prods
Valcor Engrg Corp
Vanton Pump & Equip
Vickers-A & E Center
Vickers Inc
Vinson Engrg & Sales
Vinson Systems
Weatherhead Co

VALVES, Needle

Airborne Research & Dev
Allenair Corp
Allis-Chalmers
American Meter
Amer Standard Controls
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Annin Co
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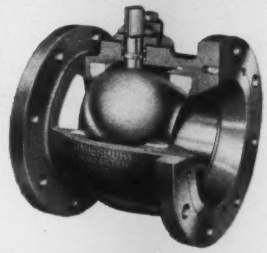

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It stands to reason that a valve that performs outstandingly under adverse conditions can be relied on to give trouble-free performance under less severe conditions. That has been one of the big reasons, at least, for the success of Jamesbury "Double-Seal" Ball Valves. Proved dependable at *critical* valve control points, these valves have gone into industrial plants everywhere to control nearly all types of media flow.

There are many exclusive features about the Jamesbury "Double-Seal" Ball Valve which contribute to its excellent performance record. For example, there's Jamesbury's patented lip seal; there are no internal springs; you get leak-tight stem seals; operators are mounted integral with the valve. For further information about Jamesbury "Double-Seal" Ball Valves, contact your nearest stocking distributor — or write us direct.

WIDE RANGE OF SIZES:

Screwed end ¼" through 3".

Flanged 150# series ½" through 12" — 300# ½" through 8".

Larger sizes on request.

VARIETY OF MATERIALS:

Valves in 303 and 316 Stainless Steel, Alloy 20, Carbon Steel, Bronze, Ductile Iron, Monel, Aluminum and PVC. Interchangeable seats and seals in Teflon, Teflon compounds, Nylon, Buna-N, Neoprene, Hypalon and natural rubbers. Type DZ: Ductile Iron and Carbon Steel, Standard.

Other materials on request.

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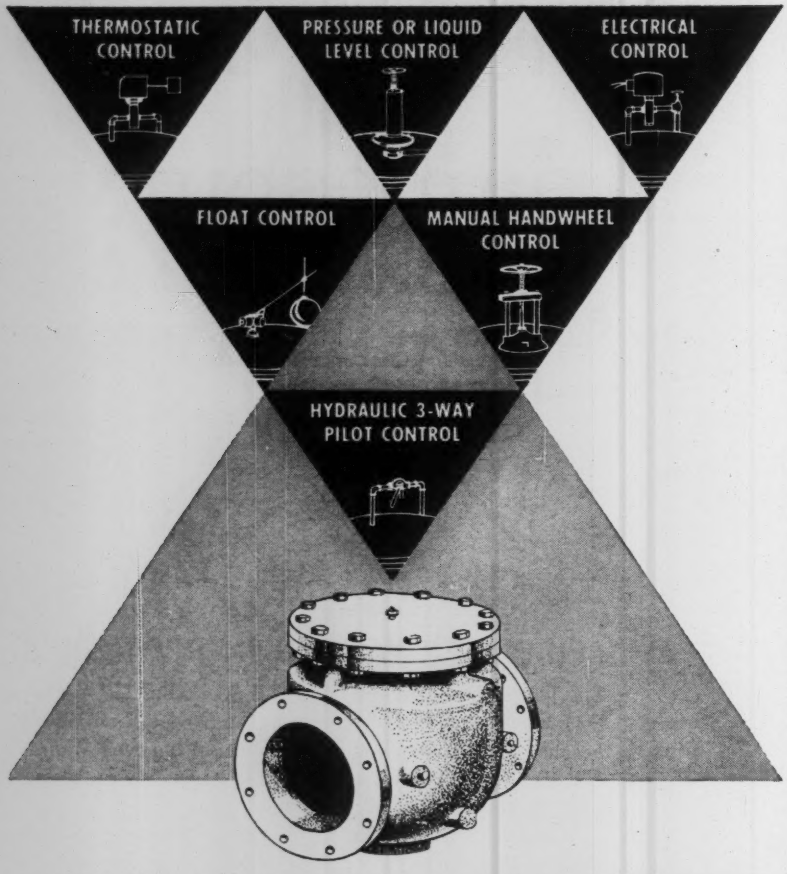

with the G-A Cushioned FLOWTROL VALVE

- Operates automatically with air, water, oil or other liquids.
- Fluid in line or independent power source operates valve—surely, dependably!
- Constructed in either angle or globe body with bronze or non-corrosive lining and parts.
- Cushioned closing. Sizes 2" to 36" for pressures to 250 psi.

WRITE FOR BULLETIN W-8A

Complete technical data is included in Bulletin W-8A, available on request.

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Blackhawk Mfg Co
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Conoflow
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Fluid Mechanisms
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GRS Corp
Gar Precision Parts
General Controls
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Instruments Inc
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Kidde Aero Space Div
Kieley & Mueller
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Kohler Co
Kunkle Valve Co
Leonard Inc, Wallace O
Leslie Co
Manning Maxwell & Moore
Marotta Valve
Maxon Premix Burner Co
McDonnell & Miller
Milton Roy Co
Mueller Co
Norgren Co C A
OPW-Jordan
Oilgear Co
Parker Aircraft Co
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Stratos Div
Talley Corp
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United Control Systems
Valco Inc
Vapor Heating Corp
Vickers-A & E Center
Victor Equipment
Vinson Engrg & Sales
Vinson Systems
Warren Automatic Control
Watts Regulator Co
Weatherhead Co
Westinghouse Air Brake

VALVES, Solenoid

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Airesearch Mfg Co
Airmatic Valve Inc
Allenair Corp
Allied Control Co
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FOR 2-WAY

3-WAY

AND 4-WAY SOLENOID VALVES

When you discuss solenoid valve requirements with an ASCO engineer, you benefit from the design and development experience of half a century. The ASCO specialist can recommend the right valve for your needs because ASCO pioneering has brought about the thousands of types of solenoid valves now available:

Two-way valves in pipe sizes from ⅛" to 8"—for temperatures from -350°F to 600°F—for pressures to 5000 p.s.i.

Three-way valves in pipe sizes from ⅛" to 2"—for temperatures from -350°F to 600°F—for pressures to 1000 p.s.i.

Four-way valves in pipe sizes from ¼" to 1½"—for temperatures from -65°F to 212°F—for pressures to 750 p.s.i.—poppet or slide type.

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The exceptionally flat frequency response of the ST-300 permits precise testing without the need for elaborate compensating devices. Natural resonances are unaffected by table loadings. In addition, by checking shock *and* vibration on the same instrument, testing time and cost are substantially reduced. Other significant features of the ST-300 include:

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For complete information and applications data, call an ITT Instruments representative or write for Data File ICS-1426-2.

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ST-150 for testing one ounce loads to over 100 g's

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Davis Regulator
Denison Engrg Div
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Dole Valve Co
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Eclipse Fuel Engrg
Electric Autolite
Farris Engrg Corp
Fluid Mechanisms
Fluid Power Access
Futurecraft Corp
GRS Corp
Galland-Henning Mfg
General Controls
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Golden Anderson
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Great Lakes Mfg
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Guardian Electric
Hamilton Standard Div
Hammel-Dahl/Foster Engrg
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Herion Inc
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Hoke Inc
Hoover Electric Co
Humphrey Products Div
Hunt Valve Co
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Hydro-Aire Co
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Johnson Corp
Keckley Co O C
Kenett Corp
Kidde Aero Space Div
Koontz-Wagner Elec
Leonard Inc, Wallace O
Lisk Co G W
M-H Industrial Controls
Manning Maxwell & Moore
Marotta Valve
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Model Engrg
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Norgren Co C A
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Parker Aircraft Co
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RKL Controls
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Rivett Lathe & Grinder
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Skinner Elec Valve
Smith Corp A O
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United Aircraft Prods
Valcor Engrg Corp
Veeco Vacuum
Versa Products
Vickers-A & E Center
Vinson Engrg & Sales
Vinson Systems
Weatherhead Co
Westinghouse Air Brake
Weston Hydraulics Ltd

VALVES, VACUUM

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Airborne Research & Dev
Airmatic Valve Inc
Associated Valve Co
Atkomatic Valve
Atwood & Morrill Co
Automatic Switch Co
Bailey Co Chas M
Barksdale Valves
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by June, et al . . . a fresh viewpoint on what "manless factories" can be . . . free from the generalities, and misconceptions so prevalent on this subject. Cloth, 88 pages, 1955. **$1.50**

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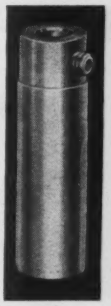

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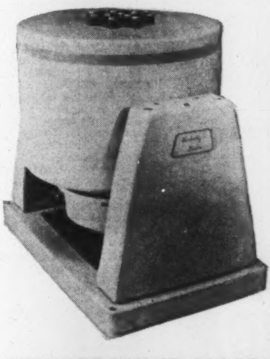

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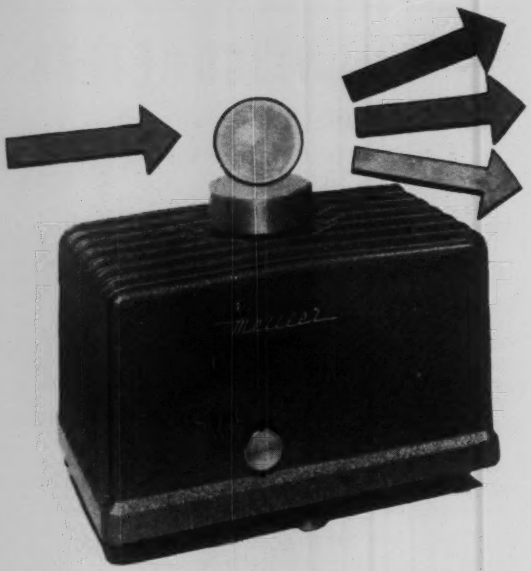

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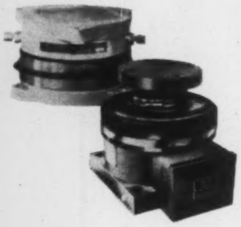

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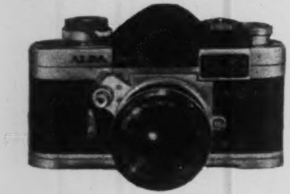

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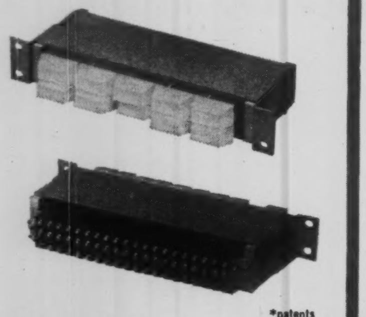

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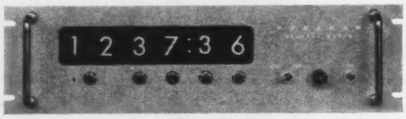

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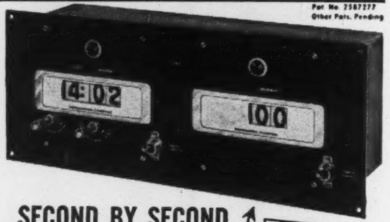

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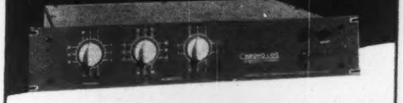

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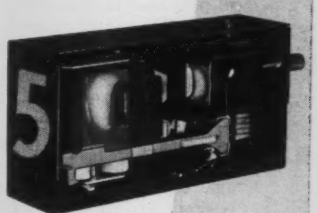

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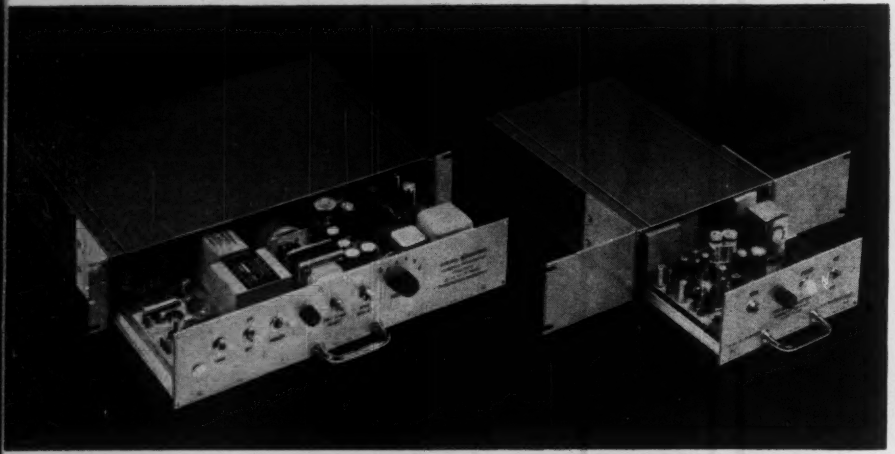
CIRCLE 164 ON READER-SERVICE CARD

NEW GENERAL ELECTRIC

Transistorized Analog

FREQUENCY TELEMETERING OFFERS GREATER SPEED OF RESPONSE, INCREASED ACCURACY



Now available! General Electric's all-new Analog Frequency Telemetering System provides greatest possible *FLEXIBILITY* to meet utility load dispatching and industrial data transmission applications.

Universal design can be easily modified for varying applications resulting in system simplicity and flexibility. Manufacturing standardization assures quick delivery.

Optional plug-in audio-tone equipment permits transmission of data over voice or microwave channels where tone frequencies are required. Optional tone transmitter and receiver offer forty different tone frequencies available with conventional shift-type operation.

Completely transistorized system has *no* vacuum tubes. Telemeter transmitter, tone transmitter and receiver use only transistors in their circuitry. Telemeter receiver utilizes only diodes.

Compact System rack mounts—conserves valuable panel space.

Plug-in application adapters determine input range and output signals for both the transmitter and receiver. Plug-in filters and transformers select tone frequencies.

Combined accuracy of transmitter and receiver is ±0.5 percent of full span over these variations: ± 15°C temperature, ± 5 percent voltage change, ± 3 cycles frequency. A combined accuracy of ± 1 percent of full span is assured even when the transmitter is subjected to −20 to 55°C or ± 10 percent voltage change.

System stability—±0.5 percent of full span in six months plus ±0.1 percent of full span per each subsequent six months.

Quick response—system speed of response is rated 1 second for 99 percent of scale range—practically instantaneous. Such response is invaluable in applications involving load-frequency control wherein high-speed response is essential. In addition, there is no overshoot.

For utility telemetering in transmitting rapid fluctuation of electrical quantities such as watts, vars, volts and amperes . . . for fast positive transmission of industrial process data including quantities of pressure, temperature, liquid level, flow and many others . . . check into the cost saving advantages of G.E.'s new Analog Frequency System today. Your nearest G-E sales representative will be glad to provide you with additional information on this all-new low cost system. Be sure to ask for bulletin GEA-7163, or write direct to General Electric Company, Section 599-07, Schenectady 5, N. Y.

INSTRUMENT DEPARTMENT

GENERAL ELECTRIC

CIRCLE 165 ON READER-SERVICE CARD

Taller and Cooper Inc
Tapco Group
Tech Measurement Corp
Technitrol Engrg
Telechrome Mfg Corp
Tele-Dynamics Div
Tempo Instrument
Thompson-Ramo-Wooldridge
Trak Electronics
Tracerlab-Keleket
United Shoe Machinery
Victor Adding Machine
Walkirt Co
Wang Laboratories

COMPUTERS, Mechanical and Electro-Mechanical, including Desk Computing Machines

Adage Inc
Airesearch Mfg Div
Allen Business Machines
American Electronics Inc
Atlas Precision Prods
Bailey Meter Co
Bulova Research
Burroughs Corp
Clary Corp
Control Circuits Inc
Detecto Scales
Dynex Inc
Feedback Controls Inc
Ford Instr
Friden Inc
Genesys Corp
Gerber Scientific Inst
Giannini Controls Corp
GPE Controls
Hagan Chem & Controls
Hamilton Standard Div
Hughes Aircraft
IBM Corp
Kearfott Div
Kellogg Switchboard
Librascope Div
MacLaren & Co F B
Melcor Electronics Corp
Monroe Calculating Mach
Monroe Electronics Div
National Cash Register
North Electric Co
Panellit
Philco Corp
Photomechanisms
Precision Mechanisms
RCA Systems Support
Rattray & Co Geo
Republic Flow Meters
Servomechanism Inc
Sterling Precision
Tally Register Corp
Tapco Div
Tracerlab-Keleket
United Shoe Machinery
Universal Match Corp
Utechnics Inc
Victor Adding Machine

COMPUTING SERVICES, Analog

Adage Inc
Computer Engrg Asso
Dian Laboratories
Electronic Associates
Embree Electronics
Foxboro Company
GPS Instrument
Hughes Aircraft
Land-Air Inc
Philbrick Researches
Reeves Instr Corp
Scientific-Atlanta
Servo Corporation
Telectro Industries

COMPUTING SERVICES, Digital, including Data Processing Services

Abacus Inc
Adage Inc
Burroughs Corp
Control Data Corp
Digital Equipment
Fischer & Porter Co
Hrb-Singer Inc
Hallamore Electronics
Hughes Aircraft
Land-Air Inc
M-H Elx Data Proc Div
National Cash Register
Philco Corp
R C A Corp
Rescon Electronics
Space Electronics
TRG Inc

CONVERTERS, Analog-to-Digital

ACF Electronics
A R & T Electronics Inc
Abacus Inc
Adage Inc
Advanced Instr Corp
Airborne Instr Lab
Airflyte Electronics
Airpax Electronics
Allegany Instrument
American Bosch Arma
American Data Div
American Electronics Inc
American Meter Co
Anadex Instruments Inc
Analogue Controls Inc
Andromeda Inc
Applied Electronics
Astrosystems Inc
Automation Dev Corp
Automation Dynamics
Autonetics
Bailey Meter Co
Beckman/Systems Div
Bendix Cincinnati Div
Bendix Eclipse-Pioneer
Bendix-Pacific
Bendix Radio Div
Bristol Company
Burroughs Corp
Calif Computer Prods
Chesapeake Instr
Coleman Electronics
Coleman Engrg
Communications Control
Computer Equipment
Computer Systems Inc
Consol Controls
Consol Electrodynamics
Consolidated Systems
Control Corp
Control Data Corp
Control Equipment Corp
Contronics
Cox Instruments
Curtiss-Wright IMI
Data Products Co
Data-Master Corp
Data Tech
Datex Corp
Daystrom/Control Sys
Daystrom/Mil Elx
Daystrom/Weston
Deltron Inc
Digitran Co
Detecto Scales
Detroit Controls
Di/An Controls
Digital Equipment
Digitran Co
DJECO
Dresser Elx/SIE Div
Drexel Dynamics Corp
Dychro Corp
Dymec
Dynamics Research
Dynamic System Elect
Dynatronics Inc
Dynex Inc
Ebex
Eldorado Electronics
Electro-Autosizing
Electro Instruments
Electrodynamic Instr
Electro-Logic Corp
Electro-Mec Lab
Electro Mechanical Res
Electropac Inc
Electronic Associates
Electronic Computer Co
Electronic Controls Inc
Electronic Dev Corp
Electronic System Dev
Epsco Inc
Epsco-West
Erie-Pacific Div
Erie Resistor
Fairbanks-Morse
Farrand Controls
Fischer & Porter Co
Ford Instr
GE Ind Control Dept
General Devices
General Dynamics/Elx
General Mills Inc
Genesys Corp
Gerber Scientific Inst
Gilmore Industries
Gulton Industries
Gurley W & L E
Hagan Chem & Controls L S
Hallamore Electronics
Hamilton Standard Div
Haydon Co A W
Hewlett-Packard
Hoover Electronics
Howell Instrs Inc
Hughes Aircraft
Hydro-Aire Co
ITT Federal Labs
Industrial Control Co
Instr Development Labs
Industrial Electronic
Julie Research Labs
Kearfott Div
Kin Tel
Kollsman Instr Corp
Land-Air Inc
Librascope Div
Link Div
Litton Systems
M-H Military Prods Grp
Macleod Inst Corp
Magnavox Co
Martin Company
Maryland Telecomm
Microdot Inc
Milgo Electronic
Milro Controls
Model Engrg
Monitor Systems Inc
Moore Associates
Motorola Military Elx
Navigation Computer Corp
Non-Linear Systems
Norden Divison
North Atlantic Indust
Northeastern Engrg
North Electric
Norwood Controls
Orbitran Co
Packard Bell
Panellit Inc
Pearce-Simpson Inc
Performance Measurements
Philco Corp
Potter Aeronautical
R C A Corp
RCA Systems Support
Radiation Inc
Radiation Instr Dev Lab
Ransom Research
Rattray & Co Geo
Pioneer Magnetics
Raytheon/Comm & Data Div
Reeves Instr Corp
Rescon Electronics
Rheem Electronics
Rosemount Engrg Co
Rotary Devices Corp
Schlumberger Corp
Servomechanism Inc
Sierra Research Corp
Southwestern Indus Elx
Sperry Utah Co
Sterling Precision
Strand Engrg Co
Streeter Amet

Swartwout Div
Sylvania Electronic Sys
Systron-Donner
Taller and Cooper Inc
Taylor Instrument
Tech Measurement Corp
Telechrome Mfg Corp
Telecomputing Corp
Telectro Industries
Tele-Dynamics Div
Texas Instruments Inc
Thompson-Ramo-Wooldridge
Tracerlab-Keleket
Union Switch & Signal
United Electrodynamics
United Engineers Inc
United Shoe Machinery
Vector Mfg Co
Vidar Corp
Waltham Precision Instr
Wang Laboratories
Wright Machinery Co

CONVERTERS, Binary-to-Decimal

Abacus Inc
Adage Inc
Airborne Instr Lab
Airflyte Electronics
Allegany Instrument
American Bosch Arma
Anadex Instruments Inc
Applied Electronics
Astrosystems Inc
Auerbach Electronics
Automation Dynamics
Bailey Meter Co
Beckman/Berkeley Div
Bendix-Pacific
Bendix Radio Div
Burroughs Corp
Calif Computer Prods
Coleman Electronics
Computer Equipment
Computer Measurements
Control Data Corp
Control Equipment Corp
Data Products Co
Datex Corp
Daystrom/Control Sys
Di/An Controls
Digital Equipment
Digitran Co
DJECO
Dresser Elx/SIE Div
Dymec Inc
Dynatronics Inc
Ebex
Eldorado Electronics
Electro Instruments
Electro-Logic Corp
Electropac Inc
Electronic Associates
Electronic Computer Co
Electronic Dev Corp
Electronic Engrg Co Calif
Electronic System Dev
Engineered Electronics
Epsco-West
Erie-Pacific Div
Fairbanks-Morse
Fischer & Porter Co
General Devices
Genesys Corp
Gerber Scientific Inst
Gertsch Products Inc
Gurley W & L E
Hallamore Electronics
Hamilton Standard Div
Haydon Co A W
Hoover Electronics
Hughes Aircraft
Industrial Electronic
Julie Research Labs
Kearfott Div
Land-Air Inc
Litton Systems
Martin Company
Maryland Telecomm
Milgo Electronic
Model Engrg
Monitor Systems Inc
Moore Associates
Navigation Computer Corp
Northeastern Engrg
Norwood Controls
Orbitran Co
Packard Bell Computer
Panellit Inc
Pearce-Simpson Inc
Performance Measurements
Philco Corp
RCA Systems Support
Radiation Inc
Ransom Research
Rescon Electronics
Rotary Devices Corp
Servomechanism Inc
Sierra Research Corp
Sperry Utah Co
Tally Register Corp
Tech Measurement Corp
Technitrol Engrg
Tele-Dynamics Div
Tracerlab-Keleket
Transistor Specialties
Union Switch & Signal
United Shoe Machinery
Vector Mfg Co
Victor Adding Machine
Wang Laboratories

CONVERTERS, Digital-to-Analog

ACF Electronics
Abacus Inc
Adage Inc
Airborne Instr Lab
Airpax Electronics
American Bosch Arma
Analogue Controls Inc
Andromeda Inc
Applied Electronics
Astrosystems Inc
Automation Dev Corp
Automation Dynamics
Autonetics
Bailey Meter Co
Beckman/Berkeley Div
Bendix-Pacific
Bendix Radio Div
Boonshaft and Fuchs
Burroughs Corp
Calif Computer Prods
Cimron Corp
Coleman Electronics
Coleman Engrg
Communications Control
Computer Equipment
Computer Systems Inc
Control Data Corp
Control Equipment Corp
Contronics
Convair Instruments
Cox Instruments
Curtiss-Wright IMI
Data Products Co
Datex Corp
Daystrom/Control Sys
Daystrom/Mil Elx
Di/An Controls
Diehl Mfg Co
Digital Equipment
Digitran Co
DJECO
Dresser Electronics/SIE Div
Drexel Dynamics Corp
Dynamic System Elect
Dynatronics Inc
Dynex Inc
Ebex
Eldorado Electronics
Electro-Autosizing
Electrodynamic Instr
Electro Instruments
Electronic Associates
Electronic Controls Inc
Electronic Dev Corp
Electronic System Dev
Electropac Inc
Epsco Inc
Epsco-West
Farrand Controls
Ford Instr
GE Ind Control Dept
General Devices
General Dynamics/Elx
General Radio
Genesys Corp
Gerber Scientific Inst
Gertsch Products Inc
Gulton Industries
Hagan Chem & Controls
Hallamore Electronics
Hamilton Standard Div
Haydon Co A W
Hewlett-Packard
Hoover Electronics
Hughes Aircraft
ITT Federal Labs
Julie Research Labs
Kearfott Div
Kellogg Switchboard
Kollsman Instr Corp
Land-Air Inc
Link Div
M-H Industrial Systems
M-H Military Prods Grp
Martin Company
Maryland Telecomm
Milgo Electronic
Milro Controls
Model Engrg
Monitor Systems Inc
Moore Associates
Moseley Co F L
Nacimco Products
Navigation Computer
Northeastern Engrg
Packard Bell
Panellit Inc
Pearce-Simpson Inc
Philco Corp
Pioneer Magnetics
Potter Aeronautical
R C A Corp
RCA Systems Support
Radiation Inc
Ransom Research
Rotary Devices Corp
Servomechanism Inc
Sierra Research Corp
Spectra Electronics
Spectrum Instruments
Superior Electric Co
Systron-Donner
Telechrome Mfg Corp
Tele-Dynamics Div
Thompson Ramo Wooldridge
Tracerlab-Keleket
Transistor Specialties
United Electrodynamics
United Engineers Inc
United Shoe Machinery
Vector Mfg Co
Vidar Corp
Wang Laboratories
Waugh Engrg Co
WE-Director Systems

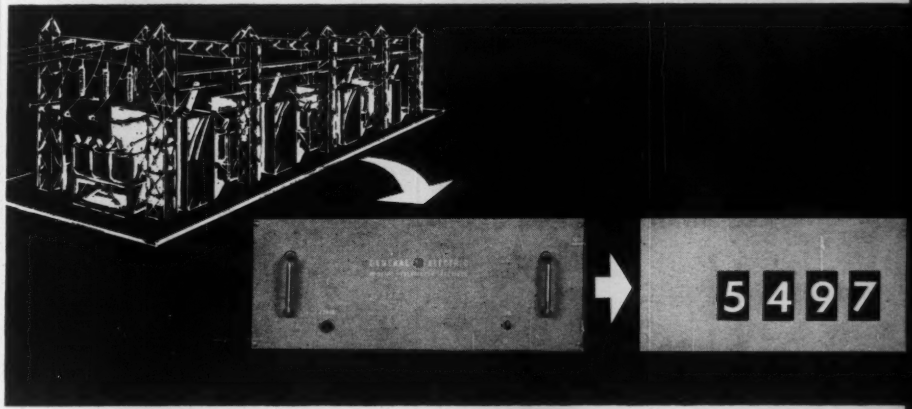
CONVERTERS, Punched Cards

Abacus Inc
Adage Inc
American Data Div
American Electronics Inc
Anadex Instruments Inc
Beckman/Berkeley Div
Burroughs Corp
Collins Radio-W Div
Convair Instruments
Di/An Controls
Digitronics Corp
Drexel Dynamics Corp
Electro Instruments
Electronic Associates
Fischer & Porter Co
Genesys Corp
Gerber Scientific Inst
Gordon Enterprises

NEW GENERAL ELECTRIC

Digital Telemetering

SYSTEM FOR FAST,
HIGH ACCURACY
DATA TRANSMISSION



For fastest, most accurate utility load or billing information, General Electric's all-new Digital Telemetering System brings kilowatt-hour information into load dispatching office over one channel, with *100 PERCENT ACCURACY*. Offers outstanding system values . . .

Flexibility: Digital telemetering signal can be time-multiplexed with an analog telemetering signal at a preset time interval, thus providing minimum channel expense and lower operating costs. Or the digital telemetering system can be used over its own isolated channel to transmit information on command. This system will also operate over any intermediate channel equipment capable of accommodating standard analog "frequency" telemetering signals.

Accuracy: Digital receiver self-checking feature permits only the read-out of correct numbers.The receiver will cancel the readout if there has been an incorrect code or interference of the coded signal during transmission.

Speed: Digital transmission is in the form of long and short pulses at average rate of 10 cps. A six digit number can be telemetered in less than five seconds.

Design: System utilizes time-proved relays and stepping switches that require minimum maintenance. No tubes or transistors are used. Equipment is furnished in 19-inch rack, dust-proof cases with slide-out drawers.

Cost: System price is usually less than the cost of comparable integrating devices which it now obsoletes.

Various read-out devices are available depending on your requirements. These include: electric typewriter, visual digital display units and tape punch equipment if you wish to use the information in a digital computer. Digital transmitters and receivers can be provided for either 4, 6 or 8 digit numbers.

For additional information on the all-new G-E Digital Telemetering System, just call your nearest General Electric sales office, ask for a copy of bulletin GEZ-3312, or write direct to General Electric Company, Section 599-07A, Schenectady 5, N. Y. In Canada, contact Canadian General Electric Company Ltd., 940 Lansdowne Avenue, Toronto 4, Ontario.

INSTRUMENT DEPARTMENT

GENERAL ELECTRIC

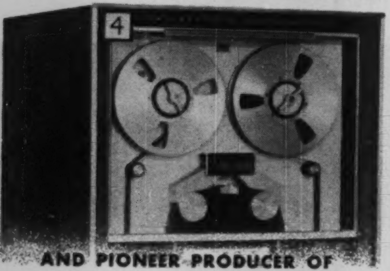
CIRCLE 166 ON READER-SERVICE CARD

MIDWESTERN INSTRUMENTS

MANUFACTURER OF THE

M3000

DIGITAL TAPE TRANSPORT SYSTEM



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acquisition and processing instruments

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for further information, write
for Product Digest No. 160

CIRCLE 167 ON READER-SERVICE CARD

Gulton Industries
Hickok Electrical Instr
IBM Corp
Land-Air Inc
M-H Industrial Systems
Magnavox Co
Maryland Telecomm
Monitor Systems Inc
Moseley Co F L
Performance Measurements
Philco Corp
Ransom Research
Systematics Div
Systron-Donner
Taller and Cooper Inc
Tally Register Corp
Technitrol Engrg
Transistor Specialties
United Shoe Machinery
Wang Laboratories

CONVERTERS, Punched Tape

Abacus Inc
Adage Inc
Airborne Instr Lab
American Electronics Inc
Anadex Instruments Inc
Auerbach Electronics
Burroughs Corp
Cedar Engrg Div
Convair Instruments
Daystrom/Control Sys
Di/An Controls
Digitronics Corp
Drexel Dynamics Corp
Eldorado Electronics
Electro Instruments
Electronic Associates
Electronic Engrg Co Calif
Ferranti Electric
Fischer & Porter Co
Friden Inc
Genesys Corp
Gerber Scientific Inst
Gulton Industries
IBM Corp
Litton Systems
M-H Industrial Systems
Maryland Telecomm
Monitor Systems Inc
Moseley Co F L
Northeastern Engrg
Philco Corp
Precision Specialties
Ransom Research
Systematics Div
Systron-Donner
Taller and Cooper Inc
Tally Register Corp
Technitrol Engrg
Tele-Dynamics Div
Tracerlab-Keleket
Trak Electronics
Transistor Specialties
United Shoe Machinery
Wang Laboratories

COUNTERS, Electrical Impulse

Abacus Inc
Abrams Instrument
Aircraft Instruments
American Data Div
Anadex Instruments Inc
Applied Electronics
Auto Control Labs
Automatic Timing & Contls
Automation Dev Corp
Baird Atomic
Baranoff & Assocs
Beckman/Berkeley Div
Bowmar Instrument
Bristol Co
Budd Co Inst Div
Burroughs Corp
C & K Components
Calif Computer Prods
Chrono-Log Corp
Computer Measurements
Control Equipment Corp
Datascan Inc
Daystrom/Control Sys
Di/An Controls
Digitran Co
Durant Mfg
Dymec
Eagle Signal
Electric Tachometer
Electro Instruments
Electro Precision
Electronic Computer Co
Electronic Counters
Engineered Electronics
Epic Inc
Erie Pacific
Erie Resistor
Exline Engrg
Fischer & Porter Co
Freed Transformer
General Controls
General Devices
GE Heavy Mil Elx Dept
General Nuclear Corp
Genesys Corp
Guardian Electric
Gurley W & L E
Gyra Electronics
Hagan Chem & Controls
Hamilton Watch Co
Haydon Co A W
Hewlett-Packard
Hydro-Aire Co
Iconix Inc
Instrument Corp of Fla
IBM Corp
Landis & Gyr
Link Div
Magnavox Co
Monitor Systems Inc
Monroe Electronics
Navigation Computer Corp
North Electric
Northeastern Engrg
Nuclear-Chicago
Nuclear Elx Corp
Performance Measurements
Philco Corp
Photocon Research
PIC Automation Ctls
Potter Aeronautical
Presin Co
RCA Systems Support
Ram Meter Inc
Ransom Research
Redford Corp
Richardson Scale Co
Rowan Controller Co
Sciaky Bros Inc
Simplex Time Recorder
Standard Instrument
Stelma Inc
Stewart M C
Streeter Amet Co
Systron-Donner
Taller and Cooper Inc
Telechrome Mfg Corp
Telecomputing Corp
Tempo Instrument
Tracerlab-Keleket
Trott Electronics
Universal Match Corp
Veeder-Root Inc
Walkirt Co
Wang Laboratories
Waugh Engineering Co

COUNTERS, Photoelectric

Abacus Inc
Allied Radio
Appalachian Electronic
Auto Control Labs
Automation Dev Corp
Autotron Inc
Baranoff & Assocs
Beckman/Berkeley Div
Beva Laboratory
Cramer Div
Datascan Inc
Davenport Mfg
Dmeter Mfg
Durant Mfg
Dynapar Corp
Eastern Specialty Co
Eldorado Electronics
Electronic Control
Epic Inc
Erie Pacific
Farmer Electric
Freed Transformer
General Controls
GE Specialty Control
Gurley W & L E
Hewlett-Packard
Hoffman Electronics
Hydel Inc
Instr Development Co
Kavamil Co
Kollsman Instr Corp
Machinery Electrification
Maryland Telecomm
Mason Instr Co
National Standard Elx
Navigation Computer Corp
Photobell Co
PIC Automation Ctls
Post Electronic
Potter Aeronautical
Potter Instr Co
Presin Co
Redford Corp
Schlumberger Corp
Sierra Research Corp
Spectra Electronics
Standard Instrument
Streeter Amet Co
Tele-Dynamics Div
Transistor Specialties
Tri-Tronics Co
Trott Electronics
Veeder-Root Inc
Wells Inds
Wintronics
Worner Electronic Devices

COUNTERS, Photoelectric, Curve Followers

Electronic Counters
Geotechnical Corp
GE Specialty Control
Kollsman Instr Corp
Maryland Telecomm
National Standard Elx
Post Electronic
Presin Co
Spectra Electronics
Sterling Precision
Wells Inds

DATA-PROCESSING SYSTEMS and COMPONENTS, including Tape Transports, Perforators, Readers, Loggers, etc. (see also Computers, also Printers)

ACF Electronics
Abacus Inc
Adage Inc
Advanced Instr Corp
Airborne Instr Lab
Airtronics Inc
American Data Div
American Electronics Inc
Ampex Computer Products
Ampex Data Products
Ampex Magnetic Tape
Amplifier Corp of Amer
Anadex Instruments Inc
Anelex Corp
Applied Electronics
Arnoux Corp
Atronic Products
Auerbach Electronics
Automation Dev Corp
B & F Instruments
Bailey Meter Co
Beckman Systems Div
Bendix Computer Div

INFORMATION SYSTEMS

Baylor 750 Information Systems make the large quantity of measurements which are necessary to successful operation of a plant, condenses them, clarifies them, and places them within easy comprehension of the operator. The system performs the following functions: measuring, data gathering, alarm monitoring, digital readout, logging, and computing. The system is composed of solid-state, functional modules, standardized and interchangeable, so assembled that each application provides the benefits of both standardization and custom building. Request Bulletin 750 for details.

BAILEY METER COMPANY

1041 Ivanhoe Rd., Cleveland 10, Ohio

CIRCLE 168 ON READER-SERVICE CARD

Bendix York Div
Bristol Company
Budd Lewyt
Burroughs Corp
Bytrex Corp
CBS Laboratories
Calif Technical Indus
Carlton Controls
Cedar Engrg Div
Chadwick-Helmuth
Chrono-Log Corp
Cimron Corp
Clary Corp
Co-Engineering Co
Coleman Electronics
Coleman Engrg
Collins Radio-W Div
Computer Control
Computer Equipment
Computer Systems Inc
Communications Control
Concord Control Inc
Consolidated Avionics
Consol Electrodynamics
Consolidated Systems
Control Corp
Control Data Corp
Control Equipment Corp
Convair Instruments
Cook Electric Co
Cox Instruments
Cratex Mfg Co
Curtiss-Wright IMI
Cycle Equipment Co
Data Display Inc
Data-Master Corp
Datascan Inc
Daystrom/Mil Elx
Daystrom/Weston
Designers for Industry
Di/An Controls
Digital Equipment
Digitronics Corp
Dresser Elx/SIE Div
Drexel Dynamics Corp
Dymec Inc
Dynametrics Corp
Dynatronics Inc
Dynex Inc
Ebex
Electric Eye Equip
Electro Instruments
Electrodata Div
Electro-Logic Corp
Electro-Mechanical Res
Electropac Inc
Electronic Associates
Electronic Computer Co
Electronic Controls Inc
Electronic Dev Corp
Electronic Engrg Co Calif
Epsco-West
Fairchild Camera & Instr
Ferranti Electric
Fischer & Porter Co
Flow Corporation
Friden Inc
GPL Division
Garlynn Engrg Co
General Ceramics
General Devices
General Dynamics/Elx
G E Apparatus Sales Div
G E Computer Dept
G E Ind Control Dept
G E HMEE Dept
Genesys Corp
Geotechnical Corp
Gerber Scientific Instr
Giannini Controls Corp
Gilmore Industries
Gordon Enterprises
Gulton Industries
Gulton-Ortholog
Gyrex Corp
Hagan Chem & Contrls
Hallamore Electronics
Hanson-Gorrill-Brian
Hoover Electronics
Hughes Products
Hydel Inc
IBM Corp
IBM Federal Sys Div
ITT Federal Labs
Industrial Nucleonic
Instrument Lab Inc
Intelex Systems Inc
Kavamil Co
Kearfott Div
Kennedy Co
Laboratory for Electronics
Land-Air Inc
Leeds & Northrup
Librascope Div
Licon Div
Lind Instr
Link Div
Litton Systems
Lundell & Co
Lundy Mfg Corp
Magnasync Mfg Co
Magnavox Co
Marquardt-Pomona Div
Midwestern Instrs
Milgo Electronic
M-H Brown Instrs Div
M-H Elx Data Proc Div
M-H Industrial Systems
M-H Precision Meter Div
Missouri Res Labs
Mnemotron Corp
Monitor Systems Inc
Monroe Electronics
Moore Associates
Moseley Co F L
Motorola Military Elx
National Cash Register
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Norden Division
North Electric Co
Nortronics
Optimized Devices
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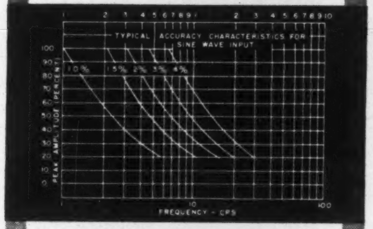
in MULTIPLYING and FUNCTION GENERATION

CIC model MMS 500-1

GALVANOMETER SERVO-SYSTEMS



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Pennwood Numechron
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Philco Corp
Potter Instr Co
Precision Instr Co
R C A Corp
RCA Defense Electronic
RCA Systems Support
Radiaphone Co
Radiation Inc
Ransom Research
Raytheon Aero/Weapons
Raytheon/Com & Data Div
Rheem Electronics
Richardson Camera Co
Rowe Engravers Inc
Sanborn Company
Sangamo Electric Co
Sciaky Bros Inc
Shepard Laboratories
Sierra Research Corp
Specialties Inc
Sperry Utah Co
Stavid Div
Stromberg Div
Sylvania Electronic Sys
Systematics Inc
Systron-Donner
Tally Register Corp
Techni-Rite Electronics
Telectro Industries
Tele-Dynamics Div
Teletype Corp
Taller and Cooper Inc
Tally Register Corp
Tapco Group
Taylor Instrument Cos
Technitrol Engrg
Telechrome Mfg Corp
Telecomputing Corp
Thompson-Ramo-Wooldridge
Traid Corp
Union Switch & Signal
United Shoe Machinery
Vanguard Instrument
Vapor Recovery Systems
Victor Adding Machine
Vidar Corp
Viking Industries
Wang Laboratories
Westronics/Inc

DIGITAL BUILDING BLOCKS, including Computer Components

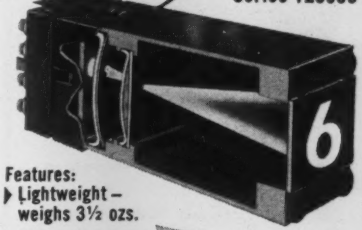
ACF Electronics
Abacus Inc
Adage Inc
Airborne Instr Lab
Airtronics Inc
Allegri-Tech
Allen Avionics Inc
American Bosch Arma
American Electronics Inc
American Pamcor Inc
Ampex Computer Products
Anadex Instruments Inc
Applied Electronics
Artronic Instr Co
Auerbach Electronics
Automation Dev Corp
Beck S Inc
Beckman/Berkeley Div
Beckman/Systems Div
Bendix-Pacific
Bendix Radio Div
Borg-Warner Controls
Bryant Computer
Burroughs Corp
Burroughs Elx Tube
Bytrex Corp
Chrono-Log Corp
C & K Components
Calif Computer Prods
Clary Corp
Cleveland Metal Spec
Coleman Electronics
Computer Control
Computer Equipment
Computer Measurements
Computer Systems Inc
Consolidated Avionics
Consol Electrodynamics
Consolidated Systems
Control Equipment Corp
Contronics
Convair Instruments
Cooper Development
Cox Instruments
Cubic Corp
Curtiss-Wright IMI
Dalmotor Div
Data Products Co
Datascan Inc
Datex Corp
Daystrom/Mil Elx
Delco Radio
Di/An Controls
Digital Equipment
Digitronics Corp
DJECO
Dresser Elx/SIE Div
Drexel Dynamics Corp
Dymec Inc
Dynamic Controls
Dynamic System Elect
Dynatronics Inc
Eldorado Electronics
Electro Instruments
Electro Logic Corp
Electropac Inc
Electro Precision
Electrodata Div
Electronic Dev Corp
Electronic Engrg Co
Electronic Products
Electronic System Dev
Engineered Electronics
Engis Equipment
Frontier Elx
General Devices
GE Apparatus Sales Div
GE Heavy Mil Elx Dept
General Mills Inc
Genesys Corp
Giannnini Controls Corp
GPE Controls
Gulton Industries
Hagan Chem & Controls
Hallamore Electronics
Harvey-Wells
Hoover Electronics
Hughes Aircraft
Hydel Inc
IMC Magnetics
ITT Federal Labs
Kavamil Co
Kearfott Div
Kin Tel Div
Land-Air Inc
Leeds & Northrup
Librascope Div
Link Div
Litton Systems
MacLaren & Co F B
Magnavox Co
Marquardt-Pomona Div
Martin Company
Midwestern Instrs
Milgo Electronic
M-H Industrial Systems
M-H Military Prods Grp
Monitor Systems Inc
Monroe Electronincs Div
Motorola Military Elx
Navigation Computer Corp
North Electric Co
Packard Bell
Parabam Div
Performance Measurements
Philco Corp
Plug-In Instruments Inc
RCA Defense Electronic
RCA Systems Support
RMS Associates
Radiation Inc
Ransom Research
Raytheon/Com & Data Div
Rescon Electronics
Rheem Electronics
Rixon Electronics
Robotomics Inc
Sperry Utah Co
Stavid Div
Sylvania Electronic Sys
Systron-Donner
Tally Register Corp
Telechrome Mfg Corp
Tele-Dynamics Div
Tempo Instrument
Thompson-Ramo-Wooldridge
Traid Corp
Trak Electronics
Walkirt Co
Wang Laboratories
Wells Electronics

DIGITAL READOUT INDICATORS (see also Data Processing)

ACF Electronics
Airpax Electronics
American Electronics Inc
Amer Standard Controls
Anadex Instruments Inc
Applied Electronics
Automation Dev Corp
Baldwin-Lima-Hamilton
Beckman/Berkeley Div
BJ Electronics
Bendix Radio Div
Bendix York Div
Borg Equipment Div
Borg-Warner Controls
Bowmar Instrument
Bowser Inc
Burroughs Corp
Burroughs Elx Tube
Bushnell Co D P
Bytrex Corp
CBS Laboratories
Cimron Corp
Coleman Electronics
Computer Measurements
Consol Electrodynamics
Consolidated Systems
Control Data Corp
Control Equipment Corp
Cox Instruments
Cramer Div
Data Display Inc
Data-Master Corp
Daystrom/Mil Elx
Detroit Controls
Dialight Corp
Digitran Co
Dresser Elx/SIE Div
Durant Mfg
Dymec Inc
Dynametrics Corp
Dynamics Research
Dynapar Corp
Dynex Inc
Eldorado Electronics
Electric Indicator Co
Electro Instruments
Electrodata Div
Electronic Associates
Electrosnap
Engineered Electronics
Engis Equipment
Erie Pacific
Fischer & Porter Co
General Controls
General Devices
GE Heavy Mil Elx Dept
General Railway Signal
Genesys Corp
Gerber Scientific Inst

MINIATURIZED! LIGHTWEIGHT!

IN-LINE DIGITAL READOUT
Series 120000



Features:
- Lightweight – weighs 3½ ozs.
- Quick disconnect at rear for easy lamp replacement.

PRICE COMPLETE $35.00

Quantity Prices On Request

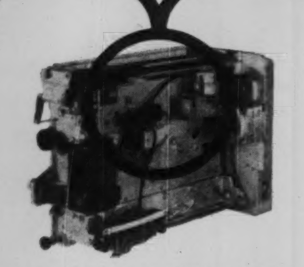
WRITE TODAY FOR COMPLETE SPECIFICATIONS

Representatives in principal cities

Over 1000 firms throughout the world in just a few years prove unprecedented acceptance of IEE digital readouts.

INDUSTRIAL ELECTRONIC ENGINEERS, Inc.
5528 VINELAND AVENUE
NORTH HOLLYWOOD, CALIF.
IEE

CIRCLE 171 ON READER-SERVICE CARD



NEW DISC INTEGRATOR AUTOMATICALLY INTERPRETS CHART CURVES

- 0.1% Accuracy.
- Easily added to most recorders.
- Count rates from 100 per hr. to 30,000 per minute.
- Records continuously on chart, remote counter or printer.

Write for Descriptive Brochure

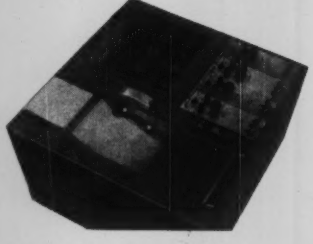
DISC

DISC INSTRUMENTS, INC.
3014B South Halladay Street
Santa Ana, California

CIRCLE 172 ON READER-SERVICE CARD

SCHWARZER

High-Frequency Graphic Recorders



- Five basic sizes available
- 1 to 16 channels, more channels on request
- Plug-in, high-gain DC-AC preamplifiers
- Frequency response: up to 300 cps within 3 db
- Rectilinear, dry & permanent tracings with unique SCHWARZER carbon paper method
- Economical recording principle: cost is less than $2 per thousand feet per channel!

SCHWARZER Company
46 Salmi Road, Framingham, Mass.

Write direct for location of nearest Branch Office or Representative.

CIRCLE 173 ON READER-SERVICE CARD

Gilmore Industries
Gulton Industries Inc
Hagan Chem & Controls
Haydon Co A W
Haydon Instr Co
Houston-Fearless Corp
Hughes Products
I D E A Inc
Ideal Aerosmith
Industrial Electronic
Kay Electric
Kearfott Div
Kin Tel
Laboratory for Electronics
Land-Air Inc
Landis & Gyr
Leeds & Northrup
Librascope Div
Litton Systems
Lockheed Electronics
M-H Precision Meter Div
MacLeod Inst Corp
Marco Industries
Marquardt-Pomona Div
Mast Development
Milgo Electronic
Milman Engrg Co
Monitor Systems Inc
Motorola Military Elx
Navigation Computer Corp
Non-Linear Systems
Norden Division
North Atlantic Indus
Northeastern Engrg
Nortronics
Patwin Div
Philco Corp
Physical Sciences Corp
Pic Automation Ctls
Performance Measurements
Post Electronic
Potter Aeronautical
Presin Co
RCA Defense Electronic
RMS Associates
Radio Frequency Labs
Ransom Research
Rescon Electronics
Rheem Electronics
Robotomics Enterprises
Ruge Associates
Schlumberger Corp
Security Devices Lab
Slocomb Co J T
Sperry Utah Co
Sterling Precision
Streeter Amet Co
Stromberg-Carlson San Diego
Sylvania Electronic Sys
Systron-Donner
Tech Measurement Corp
Techni-Rite Electronics
Telechrome Mfg Corp
Tele-Dynamics Div
Transistor Electronics
Transistor Specialties
Union Switch & Signal
United Engineers Inc
Veeder-Root Inc
Victor Adding Machine
Wayne-George Corp
Westronics Inc

DISCS, Binary Coded

Airflyte Electronics
Beck S Inc
Industrial Electronic
Mann Co David W
Rotary Devices Corp

ENCODERS, Shaft Position

Abacus Inc
Advanced Instr Corp
Airflyte Electronics
Alden Electronic
American Bosch Arma
Amer Standard Controls
Applied Electronics
Astrosystems Inc
Beck S Inc
Bendix Eclipse-Pioneer
Bendix-Pacific
Carlton Controls
Cedar Engrg Div
Coleman Electronics
Collins Radio—W Div
Colorado Research Corp
Concord Control Inc
Data Tech
Daystrom/Mil Elx
Digitran Co
Dynamics Research
Dynex Inc
Electric Indicator Co
Electro-Mechanical Res
Engis Equipment
Fairbanks-Morse
Farrand Controls
Fischer & Porter Co
Ford Instr
General Devices
Guidance Controls Corp
Gulton-Ortholog
Haydon Co A W
Hydro-Aire Co
Ideal Aerosmith
Instr Development Labs
Kearfott Div
Librascope Div
Lind Instr
Litton Systems
M-H Military Prods Grp
Model Engrg & Mfg Corp
Moore Associates
Norden Division
Rotary Devices Corp
Rotiform Co
Sperry Utah Co
Strand Engrg Co
Telechrome Mfg Corp
Telectro Industries
Wayne-George Corp
Wright Machinery Co

FACSIMILE, Transmitters, Receivers

Aeroflex Corp
Designers for Industry
Hughes Aircraft
Litton Systems
Mallory & Co P R
Maryland Telecomm
Muirhead Instrs
Midwestern Instrs
RCA Defense Electronic
Telectro Industries
Technitrol Engrg

FUNCTION OPERATORS

Amer Meas & Control
Argonaut Assocs
Automation Dev Corp
Electronic Associates
Exact Electronics Inc
Exactel Instrument Co
Haydon Co A W
Insco Company
Kollsman Instr Corp
M-H Military Prods Grp
Plug-In Instruments Inc
Reeves Instr Corp
Scientific-Atlanta
Syracuse Electronics

INTEGRATORS, Mechanical and Electro-mechanical (see also Planimeters; also Totalizers —Cat. I)

Acromag Inc
Aeroflex Corp
Allegany Instrument
American Bosch Arma
American Electronics
American Meter Co
Andersen Labs
Annis Co R B
Automation Dev Corp
Bailey Meter Co
Barber-Colman
Beckman/Helipot Div
Bulova Research
Bush Associates G F
Cramer Division
Datex Corp
Disc Instruments
Dresser Elx/SIE Div
Edison Industries T A
Eldorado Electronics
Feedback Controls Inc
Ford Instr
Foxboro Company
Gap Instrument
General Mills Inc
Hagan Chem & Controls
Haydon Co A W
Hays Corp
Hughes Aircraft
Industrial Control Co
Inertia Switch
Integrated Dynamics Div
Kearfott Div
Kollsman Instr Corp
Librascope Div
Maxson Corp W L
Model Engrg & Mfg Corp
Norden Division
Philbrick Researches
Power Tronic Systems
Reflectone Electronics
Rockwell Mfg Co
Royson Engrg Co
Schlumberger Corp
Scientific-Atlanta
Servo Systems Co
Summers Gyroscope
Swartwout Div
United Engineers Inc
Vidar Corp

MEMORIES, Electrostatic, Including C-R Tubes (see also Computers)

Airborne Instr Lab
Analab Instrument
Burroughs Corp
Datex Corp
Electronic Tube
General Electrodynamics
Hughes Products
IBM Corp
Image Instruments
Industrial Control Co
Intercontinental Elx
Kin Electronics
Litton Systems
RCA Defense Electronic
Ransom Research
Raytheon/Industrial Comp
Sterling Precision
Sweeney Mfg Co
Vacuum Tube Prods

MEMORIES, Magnetic, Including Tape, Drum, Cores (see also Computers)

Adage Inc
Airborne Instr Lab
Airtronics Inc
Ampex Computer Products
Ampex Data Products
Anadex Instruments Inc
Analogue Controls Inc
Andersen Labs
Arnold Engineering
Artronic Instr Co
Auerbach Electronics
Automation Inc
Autonetics
BJ Electronics
Beck S Inc
Borg-Warner Controls
Bryant Computer
Burroughs Corp
C & K Components
CBS Laboratories
CBS Electronics
Calif Computer Prods
Carlton Controls
Cedar Engrg Div
Chase Electronics
Co-Engineering Co
Computer Control
Computer Equipment
Consol Controls
Consol Electrodynamics
Control Data Corp
Control Electronics
Consolidated Systems
Cook Electric Co
Daystrom/Control Sys
Daystrom/Mil Elx
Di/An Controls
Digital Equipment
Dresser Elx/SIE Div
Electrodata Div
Electro Logic Corp
Electronic Engrg Co
Electropac Inc
Erie Resistor
Fairchild Camera & Instr
Ferranti Electric
General Ceramics
General Dynamics/Elx
GE Apparatus Sales Div
GE Heavy Mil Elx Dept
General Mills Inc
General Railway Signal
General Time Central Res
Genesys Corp
Hamilton Watch Co
Hughes Products
IBM Corp
Imtra Corp
Kellogg Switchboard
Laboratory for Electronics
Leach Corporation
Librascope Div
Litton Systems
Lockheed Electronics
M-H Military Prods Grp
M-H Precision Meter Div
Machinery Electrification
Magnasyno Corp
Midwestern Instrs
Minnesota Mining & Mfg
Monitor Systems Inc
Monroe Calculating Mach
Monroe Electronics Div
Motorola Military Elx
North Electric Co
Packard Bell
Philco Corp
Precision Instr Co
RCA Defense Electronic
RCA Systems Support
Reeves Soundcraft
Rese Engrg Inc
Rixon Electronics
Sperry Utah Co
Stavid Div
Strand Engrg Co
Sylvania Electronic Sys
Tapco Div
Telectro Industries
United Control Corp
Vermont Research
Wang Laboratories

PLANIMETERS, Automatic Flow Recording

American Meter Co
Cramer Div
Librascope Div
M-H Brown Instrs Div
Royson Engrg Co

PLANIMETERS, Linear and/or Radial (see also Integrators)

American Meter
Epic Inc
Foxboro Company
Librascope Div
Los Angeles Scien Instr
Royson Engrg Co
Sanders Laboratories
Scientific-Atlanta

PLANIMETERS, Square Root

American Meter
Fischer & Porter Co
Librascope Div
Los Angeles Scien Instr
M-H Brown Instrs Div
Pacific Transducer Corp
Royson Engrg Co

PRINTERS, Numerical Data, Including Data Loggers, High Speed Printers, Typewriters, etc. (see also Data Processing)

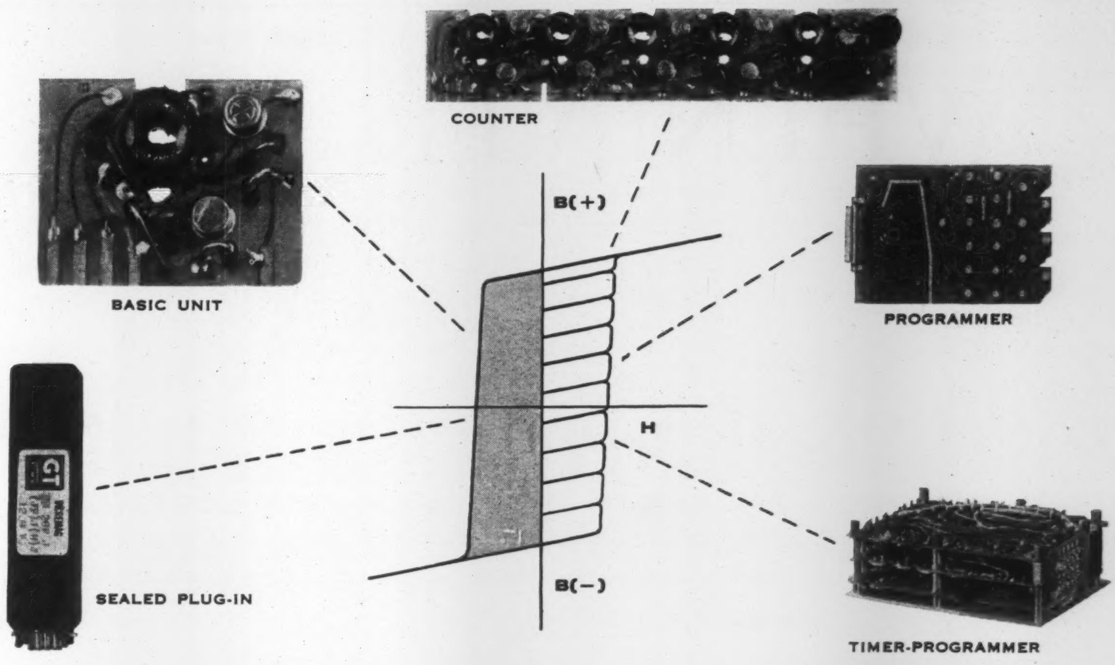
American Data Div
American Electronics Inc
Anelex Corp
Beckman/Berkeley Div
BJ Electronics
Baranoff & Assocs
Bristol Company
Burroughs Corp
Chrono-Log Corp
Clary Corp
Computer Control
Computer Measurements
Control Data Corp
Cox Instruments
Datex Corp
Dresser Elx/SIE Div
Drexel Dynamics
Dynatronics Inc
Editape Co
Electro Instruments
Electrodata Div
Electronic Associates
Exline Engrg
Fischer & Porter Co
Foxboro Company
Friden Inc
Garlynn Engrg Co
GE Computer Dept
General Aniline & Film
General Radio
Gerber Scientific Inst
Gilmore Industries
Haydon Instr Co
Hewlett-Packard
IBM Corp
Instrument Corp of Fla
Kearfott Div
Keinath Instr Co
Kimball Co A
Landis & Gyr
Lundell & Co
M-H Military Prods Grp
Marquardt-Pomona Div
Maryland Telecomm
Monroe Electronics
Northeastern Engrg
Philco Corp
Photomechanisms
Potter Instr Co
Presin Co
Radiation Inc
Scam Instrument Corp
Shepard Laboratories
Special Instr Lab Inc
Standard Instrument
Streeter Amet Co
Systematics Div
Systron-Donner
Taller and Cooper Inc
Tally Register Corp
Techni-Rite Electronics
Technitrol Engrg
Telechrome Mfg Corp
Telecomputing Corp
Tele-Dynamics Div
Teletype Corp
Thompson-Ramo-Woodridge
Toledo Scale
Wang Laboratories

RECORDERS, Circular Chart (see also Object of Measurement)

Aeronaut & Instr Div
Air Conditioning Equip
Airborne Instr Lab
Alina Corp
American Meter
Amthor Testing
Automatic Timing & Contls
B and K Instruments
Bailey Meter Co
Barber-Colman
B-I-F Industries
Bristol Co
Crosby Valve & Gage Co
Daystrom/Weston
Defender Instrument
Dickson Co
Edison Industries T A
Electric Autolite
Electronic Associates
Engis Equipment
Engler Instr
Fielden Electronics
Fischer & Porter Co
Foxboro Company
Fredericks Co
Gerber Scientific Inst
Gilmore Industries
Hagan Chem & Controls
Hays Corp
Hersey-Sparling Meter Co
Industrial Instrs Inc
Leeds & Northrup
Mason Neilan
M-H Brown Instrs Div
Penn Meter Co
Photomation Inc
Powers Regulator
Relcon Inc
Republic Flow Meters
Rockwell Mfg Co
Sangamo Electric Co
Schaevitz Engineering
Scientific-Atlanta
Scientific Instrument
Sentry Equipment
Sparling Equipment Div
Streeter Amet Co
Taylor Instrument Cos
Techni-Rite Elx
Telectro Industries
Thermo Electric Co
United Electric Controls
Wallace & Tiernan
WE-Instr & Control Sys
Weksler Instruments
Westinghouse Electric
Wheelco Indus Instrs
Yarnall-Waring

RECORDERS, Electrosensitive

Advanced Instr Corp
Airborne Instr Lab
Alden Electronic
Alfax Paper & Engrg Co
Automatic Timing & Contls
Brush Instruments Div
Century Elx & Instrs
Consol Electrodynamics
Edison Industries T A
Electro-Autosizing
Electronic Counters
Geotechnical Corp
Hagan Chem & Controls
Hathaway Instruments
Larson Instrument
Leeds and Northrup
Litton Systems
Massa Div
Midwestern Instrs
Moseley Co F L
Offner Electronics
Photron Instr Co
Radiation Inc
Sanborn Co
Simplex Time Recorder
Techni-Rite Elx
Telectro Industries
Tele-Dynamics Div
Westronics Inc



You can count more with INCREMAG*

INCREMAG is a counting-timing-programming component . . . a reliable solid-state unit that counts up to 16, instead of being limited by "yes-no" logic.

Increased reliability, fewer components, and lower power consumption are some of the specific advantages which INCREMAG gives to many programming and computer applications. INCREMAG offers wide versatility as a component or as a complete system with attendant oscillators and logic circuitry. Reliability in the operation and control of critical satellite electronics has been repeatedly demonstrated in orbit.

The basic INCREMAG unit has a magnetic core which becomes incrementally magnetized. The core is saturated by a predetermined integral number of constant-magnitude pulses. Saturation causes a discharge pulse which returns the core to its original state.

These versatile components may be combined serially or in parallel to give decimal-coded or other types of readout, with predetermined or externally adjustable counts. They have the ability to maintain the count in the event of power failure. They are available in multistage components on printed circuit cards . . . in stacked, potted, and sealed plug-in units . . . and with time sources and logic to suit system requirements.

INCREMAG counts random or periodic pulses, up to 100,000 per second. It surpasses applicable MIL Specs. These rugged, reliable units meet extreme environmental requirements, yet are so sensitive they can detect an incoming pulse that reaches peak amplitude as slowly as the incoming tide. INCREMAG works well because it is built well. It will pay you to find out how much it can do to simplify your system.

Write for your INCREMAG Bulletin containing specifications and application data.

incremag
GT

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ELECTRONIC SYSTEMS DIVISION

GENERAL TIME CORPORATION

201 Summer Street Stamford, Conn. DAvis 5-2691

CIRCLE 174 ON READER-SERVICE CARD

WHENEVER

you need buying data on any instruments or devices for measurement, inspection, testing, analysis, computing, and automatic control

Look it up in the guide

and please mention the 1962 Instruments & Control Systems Buyers' Guide when ordering or seeking information.

IF....

you are seeking a rare or exotic instrument not listed in the Guide, refer your problem to I&CS Reader Service Department, 845 Ridge Ave., Pittsburgh 12, Penna.

RECORDERS, Magnetic Tape

Airborne Instr Lab
Allied Radio
American Electronics Inc
Ampex Corp
Ampex Data Products
Ampex Magnetic Tape Prod
Amplifier Corp of Amer
Automation Corp
Bendix Computer Div
BJ Electronics
Borg-Warner Controls
Burroughs Corp
Camera Equipt Co
Co-Engineering Co
Consol Electrodynamics
Cook Electric Co
Elco Electronic Instr
Electrodynamic Instr
Electronic Applications
Electronic Associates
Ercona Corp
Federal Mfg & Engrg
Ferranti Electric
Foley Electronics
General Devices
Genesys Corp
Geotechnical Corp
Gordon Enterprises
Gulton Industries
Heath Co
Instrument Corp of Fla
Internat Radio and Elx
Kennedy Co
Land-Air Inc
Leach Corporation
Librascope Div
Litton Systems
Lockheed Electronics
M-H Industrial Systems
M M & M Mincom Div
Magnasync Corp
Magnasync Mfg Co
Micronics Div
Midwestern Instrs
Mnemotron Corp
Pacific Electro Magnetic
Packard Bell
Philco Corp
Potter Instr Co
Precision Instr Co
RCA Defense Electronic
RCA Systems Support
Radiaphone Co
Sangamo Electric Co
Stavid Div
Technitrol Engrg
Telectro Industries
Webcor Inc

RECORDERS, Multipoint

Air Conditioning Equip
Alden Electronic
Atkins Technical Inc
Automatic Timing & Contls
Barber-Colman
Bristol Co
Brush Instruments Div
Burroughs Corp
Century Elx & Insts
Consol Electrodynamics
Control Data Corp
Crump Instrument
Daystrom/Weston
Dickson Co
Electro-Autosizing
Electro Instruments
Electro-Logic Corp
Electronic Associates
Esterline Angus
Fischer & Porter Co
Foxboro Company
Fredericks Co
General Devices
GE Apparatus Sales Div
General Railway Signal
Gilmore Industries
Hagan Chem & Controls
Hays Corp
Industrial Instrs Inc
Keinath Instr Co
Larson Instrument
Leeds & Northrup
Litton Systems
M-H Brown Instrs Div
Offner Electronics Inc
Potter Instr Co
Princeton Div
Republic Flow Meters
Research Appliance Co
Schaevitz Engineering
Seiscor Div
Shaw Instr Corp
Taylor Instrument Cos
Tele-Dynamics Div
Thermo Electric Co
Westronics Inc

RECORDERS, Strip Chart (see also the Object of Measurement)

Advanced Instruments
Airborne Instr Lab
Alden Electronic
Alina Corp
Allegany Instrument
American Meter
American Optical Co
Annis Co R B
Assembly Products Inc
Atkins Technical Inc
Automatic Timing & Contls
B and K Instruments
Barber-Colman
Beckman/Berkeley Div
Beckman & Whitley
Bristol Co
Brush Instruments Div
Burroughs Corp
Century Elx & Instrs
Computer Systems Inc
Consol Electrodynamics
Corbett Science Labs
Curtiss Wright
Daystrom/Weston
Devar Systems
Electric Tachometer
Electro-Autosizing
Electro Mechanical Res
Electronic Associates
Engis Equipment
Esterline-Angus
Fischer & Porter Co
Foxboro Company
Fredericks Co
GE Apparatus Sales Div
General Radio
Geotechnical Corp
Gerber Scientific Inst
Gilmore Industries
Gordon Enterprises
Hersey-Sparling Meter Co
Industrial Instrs Inc
Instrument Corp
Larson Instrument
Leeds & Northrup
Litton Systems
Manning Maxwell & Moore
Massa Div
Midwestern Instrs
M-H Brown Instrs Div
M-H Industrial Systems
Moore Products Co
Moseley Co F L
Newport Scientific Co
Norwood Controls
Offner Electronics Inc
Photron Instr Co
Princeton Div
Republic Flow Meters
Rust Industrial Co
Rustrak Instrument Co
Ryan Recording Thermom
Sanborn Company
Sangamo Electric Co
Schaevitz Engineering
Schuco Scientific
Schwarzer Co
Scientific-Atlanta
Seiscor Div
Shaw Instr Corp
Smith Inc Arthur F
Sparling Equipment Div
Standard Instrument
Stoelting Co C H
Streeter Amet Co
Swartwout Div
Systron-Donner
Taylor Instrument Cos
Technical Products Co
Techni-Rite Elx
Tele-Dynamics Div
Texas Instruments Inc
Thermo Electric Co
Unilectron Inc
United Electric Controls
Varian Associates
WE-Instr & Control Sys
West Instrument
Westinghouse Electric
Westronics Inc
Wheelco Indus Instrs
Yellow Springs Instr
Zernickow Co

RECORDING HEADS

Airborne Instr Lab
Alden Electronic
Ampex Corp
Ampex Computer Products
Ampex Data Products
Automation Corp
BJ Electronics
Borg-Warner Controls
Brush Instruments Div
Bryant Computer
Dresser Elx/SIE Div
Eicor Div
Electrodynamic Instr
Ercona Corp
General Ceramics
Genesys Corp
Houston Instrument
Instrument Systems Corp
Kearfott Div
Laboratory for Electronics
Librascope Div
Litton Systems
Lockheed Electronics
Magnasync Mfg Co
Micronics Div
Midwestern Instrs
M-H Industrial Systems
Monroe Calculating Mach
Monroe Electronics Div
Potter Instr Co
Precision Instr Co
RCA Systems Support
Robins Industries
Stavid Div
Technical Products Co
Telectro Industries
Tele-Dynamics Div
Vermont Research

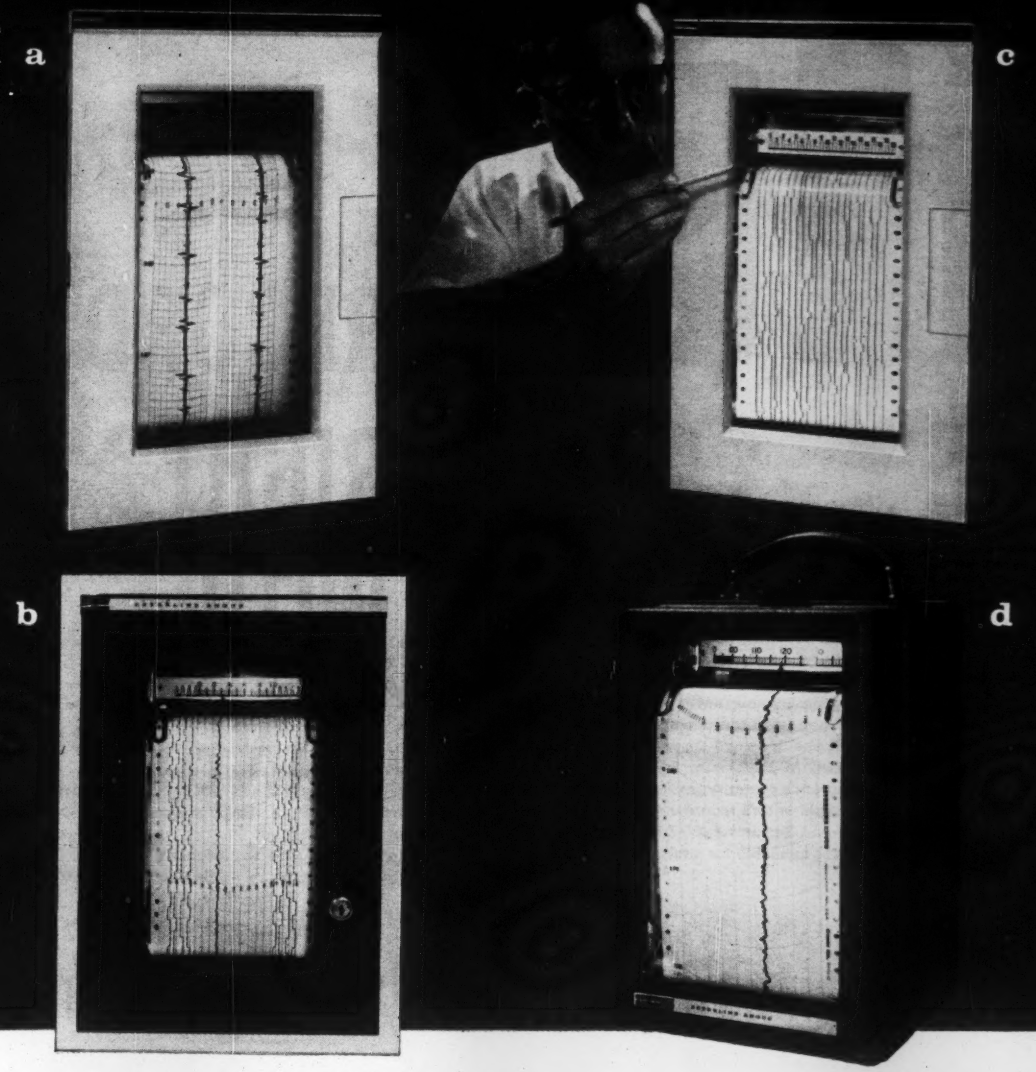
TAPE, Magnetic Recording

Accurate Specialties
Ampex Computer Products
Ampex Corp
Ampex Data Products
Ampex Magnetic Tape Pro
Arnold Engineering
Audio Devices
Coleman Electronics
Consol Electrodynamics
Crump Instrument
Gordon Enterprises
M-H Indus Systems Div
Minnesota Mining & Mfg
Potter Instr Co
RCA Defense Electronic
Reeves Soundcraft
Technical Products Co
Telechrome Mfg Corp
Telectro Industries

TELEGRAPHY, Automatic, including Reperforators, Tape Transmitters, Teleprinters, Teletypers

ACF Electronics
Atlantic Research
Borg-Warner Contls
Burroughs Corp
Clary Corp
Communications Control
Daystrom/Weston
Editape Co
Electronic Controls Inc
Ferranti Electric
Friden Inc
Intelex Systems Inc
Lundell & Co
Lynch Communication
P and H Electronics
Stelma Inc
Systematics Div
Tally Register Corp
Telechrome Mfg Corp
Tele-Dynamics Div
Teletype Corp
Western Apparatus Co

CIRCLE 175 →



Available in portable, wall, flush and projection mounting switchboard cases.

NEW Instrument Designs, Applications from Esterline Angus

a New "602" Two-channel Recorder • Simultaneously records two variants on adjacent 2″-sections of single 6″-wide chart. Applications: checking current and voltage, quality determination of arc welds, records of input vs. output.

b New Analog-Event Recorder • One instrument does the work of two . . . simultaneously records analog data and up to 8 channels of event information on single 6″-wide chart. Applications: wind speed and direction, substation bus voltage and breaker operation, rate of production (speed) and conveyor operation.

c New "620" Event Recorder with Tempen • Writes without ink, using electrically-heated styluses. Simultaneously records "when," "how long" and "how many" on as many as 20 channels. Applications: productive and nonproductive time of any or all machines in a plant, circuit breaker action, qualitative analysis, missile performance.

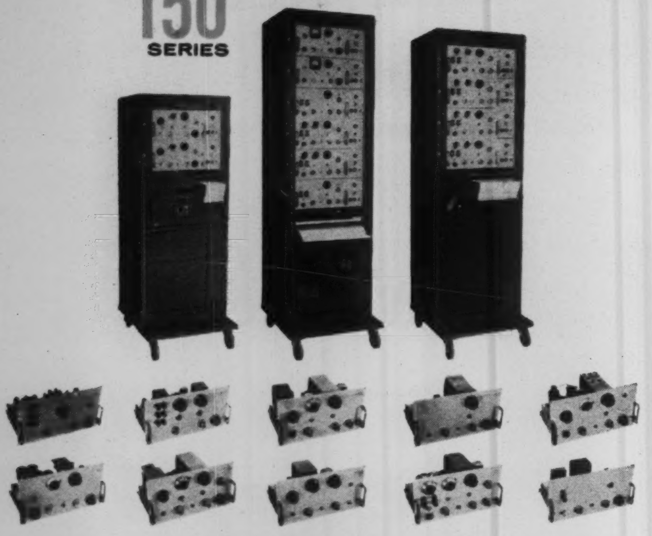
d New Expanded Scale Voltmeter • Provides increased readability of voltage records as upper ¼ of voltage range is expanded to fill upper 80% of chart span. Applications: checking voltage regulation, voltage records, trouble-shooting.

Standing solidly behind the creative designs of our engineering staff are the highly-developed skill and attention to detail of our master craftsmen. At right, M. R. Felske, Master Craftsman at Esterline Angus for 34 years. *For more detailed information on any instrument or its applications, write:* Esterline Angus Instrument Company, Inc., Box 596-N, Indianapolis 6, Indiana. See our list of offices and sales representatives on page 217.

Excellence in graphic recording for over 50 years—ESTERLINE ANGUS

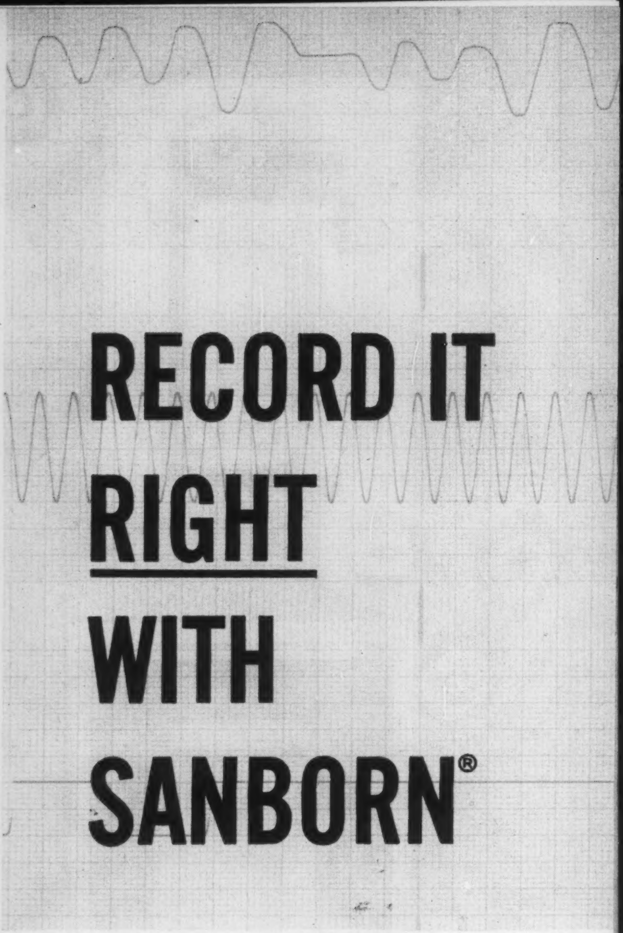
Makers of instruments to record: MICROAMPERES, DC · MILLIAMPERES, DC · AMPERES, AC AND DC · VOLTS, AC AND DC · WATTS, AC AND DC
KVA, KVAR · VOLTAGE TRANSIENTS, AC · FREQUENCY · POWER FACTOR · EVENTS · SPEED · POSITION · MOTION · PRESSURE · VACUUM

150
SERIES



PROVEN RELIABILITY OF TUBE-TYPE ELECTRONICS, CHOICE OF 11 PLUG-IN PREAMPLIFIERS FOR 1- TO 8-CHANNEL SYSTEMS

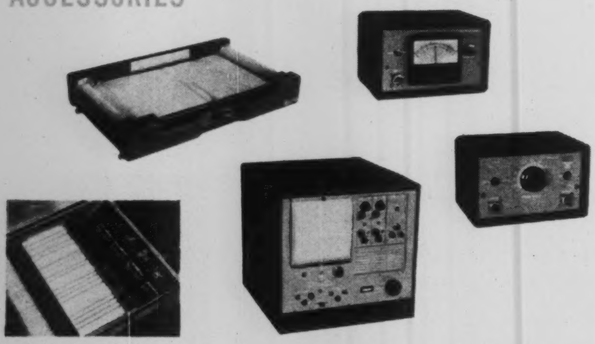
Widest choice in types of packaging and available preamplifiers of any Sanborn direct writing oscillographic recording system. Frequency response DC to 2 db down at 100 cps; basic sensitivity 10 uv/div to 0.1 volt/div, depending on preamp used; over-all linearity better than 1%, current-feedback amplifiers, horizontal plane recorder with 9 chart speeds, automatic stylus heat control. Preamplifiers include AC-DC, Carrier, Phase-Sensitive Demodulator, DC Coupling, Logarithmic, Low Level, Stabilized DC, AC Wattmeter, RMS Volt/Ammeter, 400 cycle Frequency Deviation and Frequency Meter types. Shown are vertical cabinet 2-, 4- and 6-channel "150's"; amplifier and recorder units can also be packaged in portable cases. Mobile 6- and 8-channel 46½" high console systems with dual-channel DC amplifiers also available for analog computer readout and similar applications.



RECORD IT RIGHT WITH SANBORN®

a proven SANBORN system

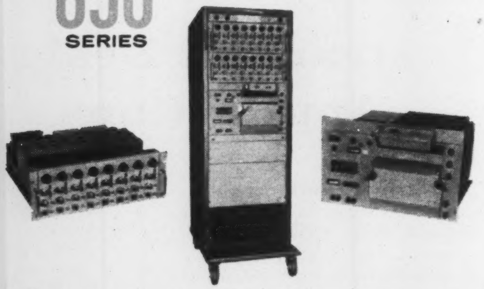
RELATED INSTRUMENTS and ACCESSORIES



Shown here are a few of the many kinds of allied instruments made by Sanborn. Typical are a high speed, 100 cps optical X-Y Recorder . . . precision made variable speed Chart Viewer for convenient study and editing of records . . . 4- to 32-channel "on-off" Event Recorders . . . Monitor Meter for indicating stylus position, system adjustment, visual monitoring, etc. . . . Servo Monitor Phase Shifter for use with Sanborn Phase-Sensitive Demodulator Preamplifiers . . . numerous linear motion and pressure transducers.

For application engineering assistance or complete product information and specifications, call the Sanborn industrial Sales-Engineering representative in or near your city. Offices throughout the U. S., in Canada and foreign countries.

650
SERIES



DC TO 3 KC OVER FULL SCALE . . . DC TO 5 KC OVER 4" AMPLITUDES . . . UP TO 24 CHANNELS WITH DIRECT READOUT

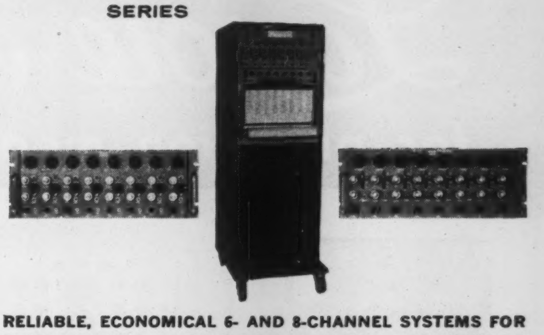
This modern optical oscillograph combines high frequency capabilities with immediate availability of recordings, using a single set of galvanometers for the entire DC-5KC range. Charts are 8" wide, daylight loading and require no chemical development. Recorder has 9 speeds from ¼"/sec. to 100"/sec.; automatic trace identification and timing lines; amplitude lines 0.1" apart can be blanked from part or all of chart; galvanometer block for 8, 16 or 24 channels, equipped with optical inserts as required. Single-chassis, 7" high amplifier module has 8 separate channels, each complete from input to galvanometer output. Inputs are floating and guarded, 100,000 ohm impedance on all ranges. Performance specifications include 8" deflection for 20 mv input; common mode rejection 140 db min. at DC, tolerance to ±500 volts; linearity 1½% of full scale; gain stability better than 1% to 50°C. and for line voltage variation from 103 to 127 volts.

350
SERIES

MAXIMUM 6- AND 8-CHANNEL PERFORMANCE, RELIABILITY AND APPLICATION VERSATILITY . . . HIGHLY DEVELOPED, SPECIALIZED PLUG-IN PREAMPLIFIERS

Flush front, 17½" high "350" style recorder unit with transistorized power amplifiers and power supply — plus extremely versatile, modern plug-in preamplifiers mounted in 21" of panel space for eight channels, comprise the main "350" system units. System response is DC to 150 cps within 3 db at 10 div peak-to-peak; input single-ended, floating and guarded, or push-pull, depending on preamp used. Preamplifiers, which can also be used alone with individual power supplies in portable cases to drive scopes, meters, optical galvanometers, etc., include Carrier, DC Coupling, Phase-Sensitive Demodulator, Differential DC, Low Level, Logarithmic, Frequency Deviation and RMS Volt/Ammeter types. Recorder-Power Amplifier features, in addition to those previously mentioned, include electrical limiting ahead of Power Amplifiers to prevent saturation or cut-off so that damping is never lost; current feedback circuits to prevent thermal drift; numerous solid state and MIL-spec components in power supply; galvanometer damping by velocity feedback signal; rugged, improved stylus construction for longer life; 50-division, 4 cm or 5 cm wide recording channels in 6-channel system, 4 cm channels in 8-channel system. Recorder-Power Amplifier assembly may also be used alone as a 0.1 volt/div sensitivity system.

950
SERIES



RELIABLE, ECONOMICAL 6- AND 8-CHANNEL SYSTEMS FOR HIGH, MEDIUM OR LOW GAIN IDENTICAL CHANNEL DC APPLICATIONS

Specially designed for applications where many similar low level DC signals must be accurately recorded and separate interchangeable preamplifiers are not required. High and medium gain amplifiers have six or eight identical transistorized channels with floating and guarded inputs; low gain amplifier is a general purpose type with high resistance balanced to ground inputs. Each amplifier with its power supply is mounted on a single chassis, with each channel complete from signal input terminals to galvanometer output terminals. For maximum sensitivity (10 uv/div) amplification, frequency response is DC to 100 cps within 3 db; for medium gain (0.5 mv/div) and low gain (10 mv/div) systems, response is extended to 150 cps within 3 db, 10 div peak-to-peak. System has all "350" flush front recorder features, including 9 pushbutton chart speeds; inkless rectangular coordinate recordings; rugged, enclosed galvanometers with velocity feedback damping; provision for remote control of chart drive, chart speeds, timer and marker.

to match your specific application

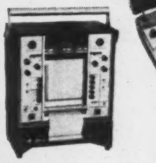
850
SERIES

MINIMUM PANEL SPACE, MAXIMUM ECONOMY IN 6- AND 8- CHANNEL SYSTEMS WITH INTERCHANGEABLE PREAMPLIFIERS

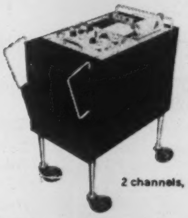
This series has all the advantages of the 6- or 8-channel flush front recording assembly unit used in "350" systems, but uses miniaturized 2" x 7" plug-in preamplifiers of more economical design. Types include Carrier, Phase-Sensitive Demodulator, DC Coupling and Low Level preamplifiers; Master Oscillator Power Amplifier available for use with Carrier and Low Level preamps. System response to 150 cps within 3 db; input circuits single-ended, push-pull, or floating and guarded, depending on preamp used. System shown is 63⅝" tall, with 8-preamplifier module in 7" of panel space, recorder in 17½" of panel space.

PORTABLES

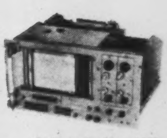
1 channel, Models 299 and 301



2 channels, Models 320, 321, 322



2 channels, Model 296



2 channels, Model 297

SINGLE- AND 2-CHANNEL PORTABLES WITH YOUR CHOICE OF AMPLIFIERS AND PACKAGING

For greatest portability in a single-channel system, briefcase size, 20 lb. Models 299 and 301 offer 2 chart speeds, response to 100 cps within 3 db, inkless rectangular coordinate recording. Model 299, for general purpose DC inputs, has 10 mv/div sensitivity, calibrated zero suppression; Model 301, for use with AC strain gages and inductive transducers, has 10 uv rms/div sensitivity. Portable 2-channel systems with built-in amplifiers include the Model 320 for general purpose DC recording with max. sensitivity of 0.5 mv/mm; Model 321 Carrier for AC transducer output recording at 10 uv rms/mm max. sensitivity; Model 322 DC Coupling with 10 sensitivities from 10 mv/div to 10 v/div. Two-channel systems with interchangeable preamplifiers include the Model 297 which accepts any two "850" preamps, and the Model 296 which uses the versatile "350" style preamps. Both the 296 and 297 may be packaged in either a mobile cart or portable case, or standard 19" rack mounted.

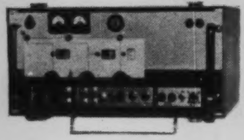
SANBORN COMPANY

INDUSTRIAL DIVISION 175 Wyman St., Waltham 54, Mass.

CIRCLE 176 ON READER-SERVICE CARD

Lavoie INSTRUMENTS

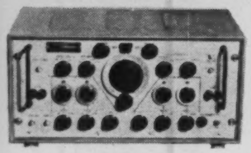
for precision measurement and analysis



LA-70A
FREQUENCY METER

The LA-70A offers exceptional accuracy, fine tuning stability, and portability. It is uniquely suited to meet FCC requirements for .0005% tolerance of fixed station transmitters in the 50-1000 Mc range. The companion LA-71 Deviation Meter provides rapid and accurate measurement of peak frequency deviation over a center frequency range of 5 Mc to 1000 Mc.

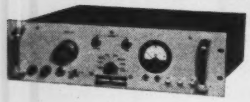
Price LA-70A $1,595.
LA-71 $ 490.



LA-593
PULSE GENERATOR

A versatile double-pulse generator with wide range control and excellent pulse shape. The amplitude of each pulse is separately adjustable. The LA-593 performs excellently in the testing of network transient response, checking delay lines, and in measuring AVC circuit recovery time.

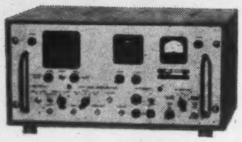
Price............ $1,175.



LA-90
FREQUENCY STANDARD

A completely self-contained package, including power supply, this 5 Mc frequency standard provides exceptional stability of 1 part in 10^9 per day. A new approach to crystal oven regulation results in shifts of less than 0.01°C over several months of operation. Six standard output frequencies.

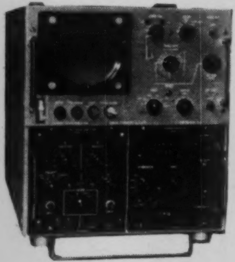
Price..............$1,950.



LA-800D
WWV FREQUENCY COMPARATOR

The LA-800D is the first to provide an accurate means for continuous monitoring of local frequency standards without frequency dividers or synchronous clock. Instantaneous accuracy is better than 1 part in 10^7. Receives either the 5.0 or 15.0 Mc WWV transmission.

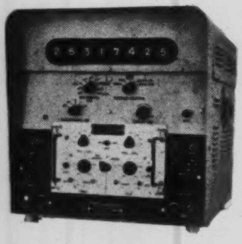
Price .... $985.



LA-270
OSCILLOSCOPE

Incorporating new design concepts in sync systems and circuitry, the LA-270 features high sensitivity (.05 V/CM), DC to 70 Mc (down less than 3 db at 70 Mc), and full 6 CM vertical deflection. A rugged, militarized unit with all circuitry built into removable modular constructed assemblies.

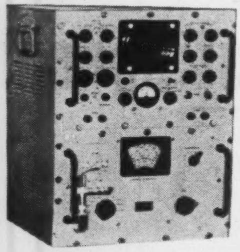
Basic Unit $1,985.
S-70 high Gain Pre-Amplifier Plug-in $ 175.
D-70 Dual Trace Pre-Amplifier Plug-in $ 285.



LA-80
ELECTRONIC COUNTER

The only 10 megacycle counter with directly coupled in-line readout. Binary conversion is eliminated by a true decade system. Time base stability is ±one part in 10^8 per day. Ten cycles to ten megacycles frequency range, with extended ranges available. The LA-80 offers out standing reliability with minimum maintenance.

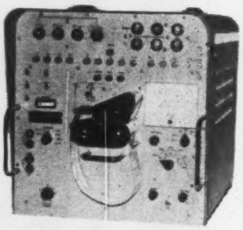
Price............ $2,250.



LA-18M
SPECTRUM ANALYZER

The bench-size LA-18M is one of a line of Lavoie spectrum analyzers featuring high stability and wide range in compact units. Unique detachable waveguide mixers provide versatility and adaptability at low cost. Range of the LA-18M is 10 Mc to 44,000 Mc.

Price..............$4,950.



LA-303
ROBOTESTER

High speed sampling and comparison reduce production line checkout and operational test time 80%. Pre-programmed acceptance standards guarantee exact measurements of resistance, insulation resistance, voltages AC and DC, and impedance. Accessories permit handling of complex problems and provide complete test systems built on Robotester capabilities.

Price ....$5,600.

Write for complete technical information.

Lavoie Laboratories, Inc.

MORGANVILLE, NEW JERSEY

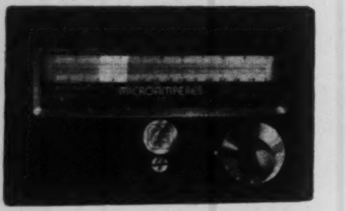
CIRCLE 177 ON READER-SERVICE CARD

Electrical and Electronic Instruments

1962 BUYERS' GUIDE

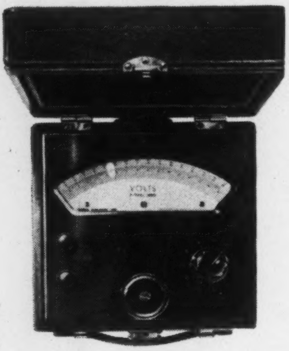
3

**ELECTRICAL AND ELECTRONIC MEASURING
AND TESTING EQUIPMENT
FOR PRODUCTION, BENCH, PANEL, AND
OEM APPLICATION—FROM AMMETERS
TO X-Y RECORDERS**



PANEL MODEL

PANEL MODEL



PORTABLE MODEL

GREIBACH PRECISION METERS

nearest to the theoretical ideal of the perfect electrical meter —for direct measuring with the highest accuracy and negligible loss

for TRANSISTORS, DIODES, TUBES, AMPLIFIERS, IONIZATION, HYPERCRITICAL MEASURING, CONTROL BY LIGHT BEAM & PHOTOCELL

D.C. ULTRA SENSITIVE METER TO .0002 MA

6.3 inch scale—Microamps to Amps with high overload capacity. Precise, stable, rugged, up to 23 ranges in a single meter.

SELECTIVE EXPANSION .025%

.025% accuracy on effective 1,000 division 5 ft. scale, electrically folded into 10 sections. No hunting for readings.

NEW AC/DC NON-THERMAL TRUE RMS MICROAMMETER

Now voltmeters and ammeters with lowest energy consumption of any non-amplifier type. Low millivolt drop, 20-30MV, high overload capacity. Response—DC to megacycles.

BIFILAR SUSPENSION IN ALL METERS

Frictionless, pivotless. No jewel bearings. Unique bifilar suspension—this basic element in all Greibach meters—assures permanent calibration.

Write for Complete Catalog and Price List.

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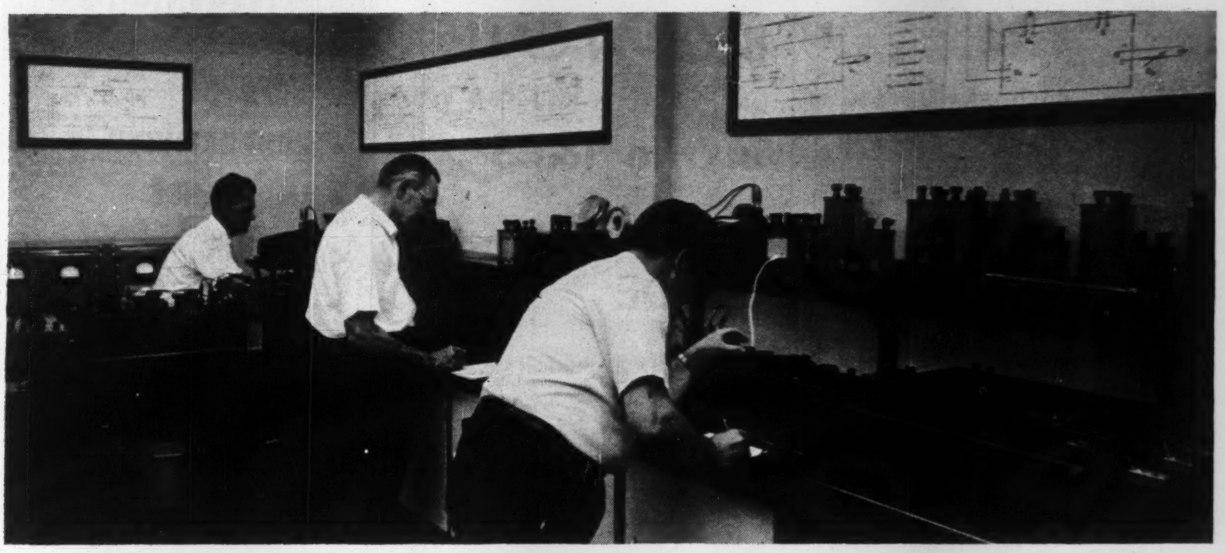

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The calibration facilities may be inspected by appointment and inquiries are invited.

Otto Wolff

UNIVERSAL RATIO SET

The original 6-dial Universal Ratio Set available commercially in the United States. Otto Wolff 5-dial Universal Ratio Sets have been in use more than 50 years. The 6-dial URS is one of the most versatile instruments a laboratory can possess.

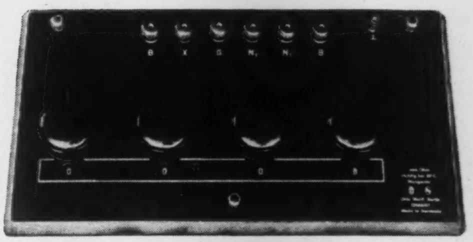
Total Resistance: 2111.110 ohms accomplished by six steps of 20 × 10 + 10 (10 + 1 + 0.1 + 0.01 + 0.001) ohms.

Accuracy: Better than 0.002% for ratio settings using one or more steps on the X100 dial above zero; or within two steps of X0.001 dial for ratio settings below the X100 dial.

Resolution: 0.00005%.

Special models for high resistance measurements available.

DIRECT READING RATIO SET



The Otto Wolff 4-Dial Direct Reading Ratio Set is based on original NBS designs and combines both high accuracy and simplicity.

Measuring Range: 1-ohm to 100,000-ohms between resistors which differ by no more than 5555 ppm from each other, or which are in a 10:1 ratio to each other.

Resolution: 1 ppm.

Accuracy: ±0.0001%.

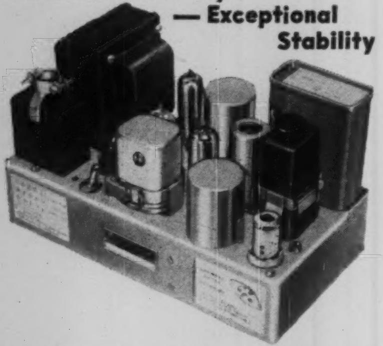
Physics Research Laboratories Inc.

P.O. Box #555 Hempstead, L. I., N. Y. IVanhoe 3-8299

CIRCLE 179 ON READER-SERVICE CARD

HIGH GAIN RELAY AMPLIFIER

Extreme Sensitivity — Exceptional Stability



The Thermo Electronic amplifier is ideal as a component in your monitoring, auto-control, or high speed "go no-go" quality control systems. It will recognize a dc signal, convert to ac, and ampify to actuate its master relay. Operating characteristics are maintained even with fluctuating power supply, electrical interference and high external input resistance. Built-in fail-safe. Standard components easily replaced.

Sensitivity 1 mu V—Stability ± 1 mu V Power gain 135 db.—Response time 0.3 sec. max. Operating power 115 v. (± 10) 50-60 cps. Wt. 6.5 lbs.—Dim. 4½" x 8¾" x 6"

Servo Amplifiers with similar specifications also available. Write today for Bulletin 90 FF.

Thermo Electric Temperature Measuring Systems and Components
Co., Inc., Saddle Brook, N.J.
In Canada: THERMO ELECTRIC (Canada) LTD., Brampton, Ont.

CIRCLE 180 ON READER-SERVICE CARD

AT YOUR BECK-'N-CALL
(and your elbow, too!)
in the I&CS BUYERS' GUIDE

—almost 2,000 product headings arranged for your easy reference

—over 2,000 companies listed with cross-reference to their products

—and 400 data-full ads.

BRIDGES ELECTRICAL

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- IMPEDANCE
- KELVIN
- LIMIT
- WHEATSTONE
- AUTO-BRIDGE
- SCHERING-BRIDGE

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Industrial Instruments Inc.
89 Commerce Road, Cedar Grove, Essex County, N. J.

CIRCLE 181 ON READER-SERVICE CARD

Kay Electric
Kearfott Div
Keithley Instruments Inc
Kelvin Electric
Kin Tel
Kollsman Instr Corp
Krohn-Hite Corp
Land-Air Inc
Leach Corporation
Leeds & Northrup
LEL Inc
Librascope Div
Ling Electronics
Litton Systems
Loral Electronics
Lynch Communication
MacLaren & Co F B
Magnetic Amplifiers
Magnetic Controls Co
Magnetic Instr Co
Magnetic Research Corp
Magnetico Inc
Magnetics Inc
Mallory & Co P R
Marathon Electric
Massa Div
Maurer Inc J A
Maxson Electronics Corp
Measurements Research
Med-Tronics Mfg Co
Megadyne Elx
Melcor Electronics Corp
M-H Apparatus Contls
M-H Boston Div
M-H Brown Instrs Div
M-H Heiland Div
M-H Industrial Systems
M-H Military Prods Grp
Microdot Inc
Micro Gee Products
Microphase Corp
Microwave Associates
Midwestern Instrs
Milgo Electronic
Milro Controls
Millen Mfg Co
Millivac Instr Inc
Mira Corp
Missouri Res Labs
Model Engrg
Molex Products
Monitor Systems Inc
Moseley Co F L
Motorola Military Elx
Muirhead Instrs Inc
Narda Corp
Natel Engrg Co
National Standard Elx
Natl Ultrasonic
Neff Instr Corp
Networks Elx Corp
New London Inst
Newport Scientific Co
Norbatrol Electronics
Norden Division
North Electric Co
Northeast Electronics
Norwood Controls
Nuclear Corp of Amer
Nuclear Elx Corp
Offner Electronics Inc
Oilgear Co
Optimized Devices
Orion Electronic Corp
Ortho Magnetics Inc
Ovitron Corp
P and H Electronics
PM Electronics
Pacific Electro Magnetic
Pacific Instrument Co
Packard Bell
Pegasus Labs
Perkin Engrg Corp
Permoflux Products
Philbrick Researches Inc
Philco Corp
Photobell
Photocon Research
Photron Instr Co
Physical Sciences Corp
Pickard & Burns
Picker X-Ray Corp
Pioneer Magnetics
Plug-In Instruments Inc
Polyphase Instr Co
Power Controls Div
Power-Tronic Systems
Quan-Tech Labs
Quindar Electronics
RCA Defense Electronic
R S Electronics Corp
Radiaphone Co
Radiation Counter Labs
Radiation Electronics
Radio Frequency Labs
Radionics Inc
Ramapo Instrument
Ramm Rectifier Co
Raytheon/Comm Apparatus
Reeves Instr Corp
Republic Flow Meters
Research Industrial Lab
Rese Engrg Inc
Research Council Inc
Rixon Electronics
Rosemount Engrg Co
Rustrak Instrument Co
Sanborn Company
Sangamo Electric Co
Schaevitz Engineering
Schlumberger Corp
Scientific-Atlanta
Scott Inc H H
Security Devices Lab
Sensitive Research Instr
Servo Corp of America
Servomechanism Inc
Servo Systems Co
Servo-Tek Products
Shapiro & Edwards
Sierra Electronic Corp
Sierra Research Corp
Sigma Instruments
Sig-Trans Inc
Solid State Electronics
Sonex Inc
Soundtronics Labs
Space Electronics
Specialties Inc
Spectra Electronics
Spectrol Electronics
Spencer-Kennedy Labs
Solid State Electronics
Standard Winding
Statham Instruments
Sterling Precision
Stoelting Co, C H
Strand Engrg Co
Stromberg-Carlson Co
Sturrup Inc
Superior Electric Co
Summers Gyroscope
Sunshine Scientific
Swartwout Div
Sweeney Mfg Co
Syracuse Electronics
Taber Instrument
Tapco Group
Tech Measurement Corp
Technical Material
Technitrol Engrg
Techni-Rite Elx
Technology Instr (Mass)
Tektronix Inc
Telechrome Mfg Corp
Telectro Industries
Tele-Dynamics Div
Telex/Lumen
Tel Instrument Elx
Tesla Research
Tensor Electric Dev
Texas Instruments Inc
Thermo Electric
Thomas Engrg Inc
Thordarson-Meksner
Toroids Unlimited Inc
Torwico Electronics
Tracerlab Inc
Transformers Inc
Trio Laboratories
Trott Electronics
Unholtz-Dickie
United Control Corp
United Control Systems
United Electrodynamics
United Transformer Corp
Universal Match
Universal Toroid Coil
Vapor Heating Corp
Vari-L Co
Varo Mfg Co
Vector Mfg Co
Vickers Electric Prods Div
Vidar Corp
Video Instruments Co
Viking Industries
Virginia Electronics
Voi-Shaw Electronics
Waber Electronics
Westamp Inc
WE-Director Systems
Westinghouse Electric
Westronics Inc
Wheeler Electronic
White Avionics Corp
Wickes Engrg & Contr
Wurlitzer Co

AUDIO-FREQUENCY EQUIPMENT

Aerovox Corp
Airborne Instr Lab
Airpax Electronics
Allied Radio
Altec Lansing Corp
Amplifier Corp of Amer
Argonaut Assocs
Audio Instrument Co
Automation Corp
Bendix Radio Div
Bermco Engineering
Bruno-New York Inds
Central Scientific
Clegg Labs
Clough Brengle
Computer Measurements
Control Electronics
Convair Instruments
Dukane Corp
Dresser Elx/SIE Div
Dymec Inc
Dytronics Co
Chadwick-Helmuth
EIco Electronic Instr
Electronic Applications
Electronic Instrument
Electronic Msmts Corp
Electronics International
Federal Mfg & Engrg
Fork Standards
Franklin Systems
Gates Radio Co
General Radio
Gyrex Corp
Hamilton Standard Div
Harmon Electronics
Heath Co
Hewlett-Packard
Holt Instrument Labs
ITI Electronics
Industrial Test Equip
Instrs for Industry
Interelectronics
Kay Electric
Korfund Co
Krohn-Hite Corp
Land-Air Inc
Ling Electronics
Litton Systems
Measurements Div
Midwestern Instrs
Molded Insulation
Muirhead Instrs Inc
P and H Electronics
Pacific Transducer Corp
Packard Bell
Philco Corp
Permoflux Products
Precision Apparatus Co
Probescope Co
Quindar Electronics
RCA Defense Electronic
Radio Frequency Labs
Research Council Inc
Riverbank Labs
Scott Inc H H
Security Devices Lab
Sensitive Research Instr
Soundtronics Labs
Specialty Electronics
Spectrum Instruments
Stelma Inc
Sterling Precision
Stromberg-Carlson Co
Technical Products Co
Telechrome Mfg Corp
Telectro Industries
Telonic Engineering
Varo Mfg Co
Veristron Inc
Virginia Electronics
Wickes Engrg & Contls
Winston Electronics

BREADBOARDS, Servo-system

Contronics
Federal Mfg & Engrg
Feedback Controls Inc
Industrial Transformer
Land-Air Inc
Melcor Electronics Corp
Milro Controls
Photomechanisms
Precision Mechanisms
Pyramid Instr Corp
Reeves Instr Corp
Servo Corporation
Servomechanisms Inc
Sperry Utah Co
Vogue Inst Corp

BRIDGES, Balancing and Calibrating, Manual; AC; Electrical, Capacitance; Electrical, Conductivity; DC; Hoopes; Impedance; Electric Inductance; Kelvin; Limit; Magnetic; Power-factor; Strain Gage; Vacuum Tube; Wattmeter; Wheatstone

Acton Laboratories
Airborne Instr Lab
Alford Mfg
Allegany Instrument
Allied Radio
Amer Meas & Control
Anadex Instruments Inc
Arnoux Corp
Associated Research
Astra Technical Instr
Astrosystems Inc
Automatic Control Co
Automation Electronics
B & F Instruments
B and K Instruments
Baldwin-Lima-Hamilton
Barnes Development Co
Bay-Tronic Co
Biddle Co James G
Boonton Electronics
Borden Engrg Co
Bristol Co
British Industries
Bruno-New York Indus
Budd Co Inst Div
Bulova Research
Calibration Standards
Cambridge Instrument
Canadian Marconi
Central Scientific
Century Elx & Instrs
Clegg Labs
Clough Brengle
Coast Coil
Communication Meas Lab
CompuDyne Corp
Computer Engrg Asso
Consol Electrodynamics
Cook Electric Co
Corbett Science Labs
Curtiss Wright
Decker Corp
Designs for Tomorrow
Dresser Elx/SIE Div
EIco Electronic Instr
Electro Impulse Lab
Electro Instruments
Electro Metric Co
Electronic Applications
Electronic Instrument
Electronic Msmts Corp
Electro Scientific Ind
Ellis Associates
Epic Inc
Eppley Laboratory
Erdco Engineering
Federal Mfg & Engrg
Fielden Electronics
Fluke Mfg Co
Freed Transformer
GE Apparatus Sales Div
General Radio
General Resistance
Gertsch Products Inc
Gray Instrument
Hagan Chem & Controls
Harris A S W Div
Heath Co
Hewlett-Packard

Indikon Inc
Industrial Development
Industrial Instrs Inc
Instrument Systems Corp
Industrial Test Equip
Julie Research Labs
Kahn & Co
Kearfott Div
Kin Tel Div
LKB Instruments
Leeds & Northrup
Lynch Communication
Magnetic Instr Co
Marconi Instruments
Measurements Research
Metronix Inc
Microdot Inc
Micro-Test Inc
Midwestern Instrs
Millitest Corp
Millivac Instr Inc
M-H Heiland Div
M-H Rubicon Div
Model Engrg
Muirhead Instrs Inc
Nacimco Products
Narda Corp
North Atlantic Indust
Norwood Controls
Optimized Devices
PRD Electronics
Philbrick Researches
Philco Corp
Physics Research Labs
Pimex Inc
Polyphase Instr Co
Precision Apparatus Co
Princeton Div
Pyramid Electric Co
Ramapo Instr Co
Reliance Instr Mfg
Rinco Inc
Rodale Electronics
Rohde & Schwarz
Rosemount Engrg Co
Ruge Associates
Sensitive Research Instr
Servonic Instruments
Shallcross Mfg Co
Shapiro & Edwards
Sierra Electronic Corp
Simmonds Precision Prods
Smith-Florence Inc
Somerset Radiation Lab
Special Instruments Lab
Sprague Electric Co
Statham Instruments
Sticht Co Herman
Sunshine Scientific
Taper Micrometer Corp
Thermo Electric Co
Transformers Inc
United Mineral & Chem
Ultronix Inc
Utechnics Inc
Waters Mfg Inc
Welch Mfg Co W M
Westronics Inc
Winslow Electronics Inc
Wintronics
Yokogawa Electric Works

CAPACITANCE INDICATORS

Acton Laboratories
Aeronaut & Instr Div
Aerovox Corp
Allied Radio
Barnes Development Co
Capcon Inc
Consolidated Airborne
Cubic Corp
Datascan Inc
Daystrom/Weston
Decker Corp
Di-Tran Corp
Eder Engrg
Electro Instruments
Electronic Applications
Electronic Msmts Corp
Epic Inc
Erdco Engineering
Fielden Electronics
Foxboro Company
General Radio
Gulton Industries
Heath Co
Indikon
Industrial Control Co
Industrial Instrs Inc
Instruments Inc
Kahn & Co
Muirhead Instrs Inc
Photobell Co
Precision Apparatus Co
Radio Condenser Co
Rohde & Schwarz
Security Controls Inc
Simpson Electric
Sweeney Mfg Co
Tektronix Inc
Telectro Industries
Trimount Instrument Div
Western Electronic Prods

CIRCUIT ANALYZERS, Industrial

Airborne Instr Lab
Airesearch Mfg Div
Astral Electronics
Automation Dynamics
B & K Mfg Co
Calif Technical Indus
Daystrom/Weston
Dit-Mco Inc
Electro Instruments
Erdco Engineering
Federal Mfg & Engrg
Federal Pacific
General Mills Inc
Guardian Electric
Gulton Industries
Hamilton Standard Div
Haydon Co A W (Calif)
Heath Co
Industrial Instrs Inc
Instrument Labs
Lavoie Labs
Optimized Devices
Panellit Inc
Pearce-Simpson Inc
Performance Measurements
Peschel Electronics
Philco Corp
Physics Research Labs
Precision Apparatus Co
Probescope Co
Projects Unlimited
Ram Meter Inc
Robotomics Inc
Rodale Electronics
Sensitive Research Instr
Servomechanism Inc
Simpson Electric
Utechnics Inc

CIRCUIT BREAKER ANALYZERS

Electro Instruments
Electron Arc
Federal Pacific
Gulton Industries
Hamilton Watch Co
Link Div
Mechanical Products Inc
Multi-Amp Electronic
Philco Corp

CIRCUIT TESTERS, including Radio Set Analyzers, Continuity Testers, etc. (see also Cable Testers—Cat. 4)

Airborne Instr Lab
Allied Radio
Amelco Inc
Associated Research
Astral Electronics
Automation Dev Corp
Automation Dynamics
Autonetics
B & K Mfg Co
Bendix York Div
Biddle Co James G
British Industries
Calif Technical Indus
Canadian Marconi
Clegg Labs
Concord Control Inc
Consolidated Avionics
Contronics
Cooper Development
Curtiss-Wright
Davenport Mfg
Daystrom/Weston
Diamond Power Specialty
Dit-Mco Inc
Di-Tran Corp
Eastern Specialty Co
Eder Engrg
Electro Instruments
Electronic Engrg Co Calif
Electronic Instrument
Electronic Msmts Corp
Electrospace Corp
Erdco Engineering
Federal Mfg & Engrg
Federal Pacific
Fedtro Inc
GE Specialty Control
General Cement
Gordon Enterprises
Gray Instrument
Guardian Electric
Gulton Industries
Haydon Co A W (Calif)
Heath Co
Hickok Electrical Instr
Hoover Electronics
ITI Electronics
Ideal Industries
Industrial Instrs Inc
Industrial Test Equip
Instrument Laboratories
Invar Electronics
Kingston Industries
Laboratory for Electronics
Lavoie Labs
Link Div
Martindale Electric
Measurements Research
Microloc Corp
Muirhead Instr
Natl Electronics (Wyo)
North Electric Co
Nortronics
Opad Electric Co
Optimized Devices
Pearce-Simpson Inc
Performance Measurements
Peschel Electronics
Philco Corp
Precision Apparatus Co
Princeton Div
Projects Unlimited
RCA Defense Electronic
RCA Systems Support
Rodale Electronics
Rodale Mfg Co
Seco Electronics
Sel-Rex Corp
Servomechanism Inc
Shallcross Mfg Co
Simpson Electric
Sittler Corp
Slaughter Co Inc
Soundtronics Labs
Strand Engrg Co
Sun Electric Corp
Sunshine Scientific
Triplett Electl Instr
Van Norman Industries
Waltham Electronics
Winston Electronics
Yokogawa Electric Works

COIL TESTING EQUIPMENT

Aerovox Corp
B & K Mfg Co
Barnes Development Co
British Industries
Capcon Inc
Davenport Mfg
Designers for Industry
Electro Instruments
Freed Transformer
Gertsch Products Inc
Heath Co
Industrial Instrs Inc
Industrial Test Equip
Kay Electric
Martindale Electric
M-H Rubicon Div
North Atlantic Indust
North Hills Electric
Opad Electric Co
Philco Corp
Seco Electronics
Simpson Electric
Slaughter Co Inc
Sterling Precision
Sunshine Scientific
United Mineral & Chem
Universal Mfg Co
Wells Electronics
Western Electronic Prods

COMMUNICATION MEASURING INSTRUMENTS

Airpax Electronics
Amelco Inc
Applied Dynamics
Atlantic Research
Bendix Scintilla Div
Budelman Electronics
CGS Laboratories Inc
Canadian Marconi
Computer Measurements
Data Products Co
Daystrom/Weston
Dittmore-Freimuth
Douglas Microwave Co
DuMont Labs Allen B
Electro Instruments
Electronic Applications
Empire Devices
Federal Mfg & Engrg
Federal Pacific
Frequency Standards
General Communication
General Devices
General Microwave Corp
General Radio
Gertsch Products Inc
Gulton Industries
Harmon Electronics
Hoover Electronics
Hughes Aircraft
Jerrold Electronics
Kaiser Aircraft & Elx
Lampkin Labs
Land-Air Inc
Lavoie Labs
Manson Labs
Marconi Instruments
Measurements Div
M-H Rubicon Div
Model Engrg & Mfg Corp
Motorola C & E
National Standard Elx
North Electric Co
Northeast Electronics
Packard Bell
Philco Corp
Pickard & Burns
RCA Defense Electronic
Raycom Instr
Rixon Electronics
Seco Electronics
Sensitive Research Instr
Sierra Electronic Corp
Simpson Electric
Spectra Electronics
Stelma Inc
Stoddart Aircraft
Sun Electric Corp
Tektronix Inc
Tel Instrument Elx
Telonic Engineering
Trak Electronics
Trio Laboratories
Virginia Electronics
Vitro Electronics
Waltham Electronics

CONDUCTIVITY METERS

Atkins Technical Inc
Control Circuits Inc
Daystrom/Weston
Electro Instruments
Hagan Chem & Controls
Iconix Inc
Industrial Instrs Inc
Kahn & Co
Leeds & Northrup
Magnaflux Corp
Mast Development
Philco Corp
Waldom Electronics

COUNTERS, Decade, Binary, Electrical Impulse

Abacus Inc
Abrams Instrument
Allegany Instrument
American Tradair
Automatic Electric
Automatic Timing & Contls
Automation Dev Corp
Baird-Atomic
Barandoff & Assocs
Beckman/Berkeley Div
Bendix Radio Div
Beva Laboratory
Bowmar Instrument
Bulova Research
Burroughs Corp
Burroughs Elx Tube
Cambridge Instrument
Canadian Marconi
Chrono-Log Corp
Computer Measurements
Control Equipment Corp
Datascan Inc
Di/An Controls
Digitran Co
Dresser Elx/SIE Div
Durant Mfg
Dymec
Eagle Signal
Eberline Instrument
Electro Instruments
Electro Precision
Electronic Associates
Electronic Computer Co
Electronic Controls Inc
Electronic Products
Engineered Electronics
Erie Pacific
Erie Resistor
Exline Engrg
Fischer & Porter Co
Franklin Systems
Freed Transformer
General Devices
GE Heavy Mil Elx Dept
General Nuclear Corp
General Radio
Gyra Electronics
Hagan Chem & Controls
Hagen Mfg Co
Hamner Electronics
Hathaway Instruments
Haydon Co A W
Haydon Div Gen Time
Haydon Instrument
Hewlett-Packard
Intelex Systems Inc
Kearfott Div
Laboratory for Electronics
Land-Air Inc
Landis & Gyr
Lavoie Labs
Librascope Div
Link Div
Machinery Electrification
Model Engrg
Monitor Systems Inc
National Standard Elx
Navigation Computer Corp
North Electric Co
Northeastern Engrg
Nuclear-Chicago
Nuclear Corp of Amer
Nuclear Elx Corp
Nuclear Measurements
Nucleonic Corp of Amer
Oxford Engrg Co
Philco Corp
Philips Electronic
Pic Automation Ctls
Picker X-Ray Corp
Plug-in Instruments Inc
Post Electronic
Potter Aeronautical
Presin Co
RCA Systems Support
Radiation Instr Dev Lab
Raytheon/Comm Apparatus
Redford Corp
Rixon Electronics
Robotomics Enterprises
Rowan Controller Co
Sciaky Bros Inc
Sigma Instruments
Simplex Time Recorder
Standard Instrument
Systron-Donner
Tech Measurement Corp
Telecomputing Corp
Tele-Dynamics Div
Tempo Instrument
Tracerlab Inc
Transistor Specialties
Trott Electronics
Valor Instruments
Van Norman Industries
Veeder-Root Inc
Voi-Shaw Electronics
WacLine Inc
Walkirt Co
Wang Laboratories
Waugh Engineering Co

CRYSTAL TESTING SETS

Barnes Development Co
Precision Apparatus Co
Radio Frequency Labs

CURRENT REGULATORS, including Ballast Tubes

Aerotronic Assoc
Brach Mfg Corp
British Industries
Capitron Div
DJECO
Davenport Mfg
Electric Regulator
Electron Arc
Electronic Industries Inc
Green Rectifier
Haydon Co A W (Calif)
Hevi-Duty Electric
Hoffman Electronics
Hoover Electronics
Interelectronics
Land-Air Inc
North Hills Electric
Philco Corp
Pioneer Magnetics
Power Controls Div
Power Designs
Power Tronic Systems
Radiation Research Corp
Servomechanism Inc
Tech Apparatus Bldrs
Technique Associates
Thordarson-Meksner
Varo Mfg Co
Vickers Electric Prods Div
Westinghouse Electric
Wickes Engrg & Constr

DECADE BOXES, Resistance, Capacitance, Inductance, etc.

Aerovox Corp
Barnes Development Co
Bermco Engineer
British Industries

CONDUCTIVITY METERS

- Laboratory Conductivity Bridges—Type RC
- Solu-Bridge—Type RD
- Solu-Bridge Controller —Type RE
- Self-balancing Indicator-Controller— Type RI
- Solu-Meter—Direct Reading Indicator— Type RA
- Portable Conductivity Recorder—Type RQ

Write for complete catalog

Industrial Instruments Inc.
89 Commerce Road, Cedar Grove, Essex County, N.J.

CIRCLE 182 ON READER-SERVICE CARD

DECADE BOXES
(Resistance-Capacitance)

RESISTANCE
Decade steps from 0.1 to 1 megohm.
Three through seven dial models.
Accuracy: ± 0.25% on 0.1 and 1 Ohm steps;
± 0.1% on all others.

CAPACITANCE
Decade steps from .0001 through 1.0 mfd. Low zero capacitance, approximately 35 mmf. Available in 5 models.

Industrial Instruments Inc.
89 Commerce Road, Cedar Grove, Essex County, N.J.

CIRCLE 183 ON READER-SERVICE CARD

The New, Improved MARK III
MEGGER INSULATION TESTER

Important New features for a long time favorite

CONSTANT VOLTAGE

MEGOHM & OHM SCALES IN ONE INSTRUMENT

Voltage	Range
100 volt	0-20 megohms
250 volt	0-50 megohms
500 volt	0-100 megohms

Each of three models is also available with ohm scale of 0 to 10,000 ohms.

W118

Write for Bulletin 21-85-I

JAMES G. BIDDLE CO.
Electrical & Speed Measuring Instruments
1316 ARCH STREET • PHILADELPHIA 7, PA.

CIRCLE 184 ON READER-SERVICE CARD

Cambridge Instrument
Central Scientific
Clarostat Mfg
Coast Coil
Daven Co
Designs for Tomorrow
Dittmore-Freimuth
Dmeter Mfg
Elco Electronics Inst
Electro Scientific Ind
Electronic Applications
Electronic Instrument
Epic Inc
Film Capacitors Inc
Freed Transformer
General Radio
General Resistance Inc
Gilmore Industries
Gray Instrument
Heath Co
Hevi-Duty Electric
Industrial Instrs Inc
Julie Research Labs
Leeds & Northrup
Millitest Corp
M-H Rubicon Div
Muirhead Instrs Inc
Ohmite Mfg Co
Pacific Instrument Co
Pimex Inc
Philco Corp
Precision Apparatus Co
Precision Line Inc
Rinco Inc
Rohde & Schwarz
Rotek Instrument
Sensitive Research Instr
Shallcross Mfg Co
Simmonds Precision Prods
Sprague Electric Co
Standard Instrument
Ultronix Inc
United Mineral & Chem
United Transformer Corp
Universal Mfg Co
Voltron Products
Warwick Products
Welch Mfg Co W M
Wells Electronics
Winslow Electronics, Inc.

DEMAGNETIZERS

Aerovox Corp
Amplifier Corp of Amer
Annis Co R B
Automation Corp
Bearing Inspection Inc
Crucible Steel
Davenport Mfg
Dyna-Empire Inc
Goslin Electric
Green Rectifier
Greibach Instruments
Ideal Industries
Instrument Systems Corp
Kearfott Div
Kendrick & Davis
L and R Mfg Co
Librascope Div
Luma Electric Equipment
Magnaflux Corp
Martindale Electric
Microtran Co
Permag Corp
Philco Corp
Radio Frequency Labs
Robins Industries
Taft-Peirce Mfg
Telectro Industries
Webcor Inc

DEMODULATORS, Electronic

Acromag Inc
Airpax Electronics
Amelco Inc
Anadex Instruments Inc
Brach Mfg
Bulova Research
Calif Computer Prods
Cambridge Electronics
Control Data Corp
Control Equipment Corp
Data Products Co
Daystrom/Wiancko
Devar Systems
Dorsett Electronics Inc
Dresser
Dynatronics Inc
Electrodynamic Instr
Electro-Mechanical Res
Geotechnical Corp
Hallamore Electronics
Hoover Electronics
Hughes Aircraft
Industrial Control Co
Intectron Inc
International Resistance
Kearfott Div
Land-Air Inc
Litton Systems
MacLaren & Co F B
Maxson Electronics
Micro Gee Products
Mira Corp
M-H Boston Div
Natel Engrg Co
Northern Radio Co
Orion Electronic Corp
Philco Corp
Plug-in Instruments Inc
Power Tronic Systems
Radiation Inc
Ramapo Instr Co
Rixon Electronics
Schaevitz Engineering
Sierra Research Corp
Solid State Electronics
Space Electronics
Summers Gyroscope
Tele-Dynamics Div
Theta Instrument
Torwico Electronics
Varo Mfg Co
Virginia Electronics
Wiancko Engrg Co

DIODE TEST SETS

Aerotronic Assoc
Allied Radio
Atlantis Electronics
Barnes Development Co
Burton Mfg Co
Computer Control
Contronics
Crosby-Teletronics Corp
Datascan Inc
Designers for Industry
Di-Tran Corp
Dittmore-Freimuth
Dymec
Dynatran Electronics
E-H Research Labs
Electro Instruments
Electropac Inc
GE Specialty Control
Haydon Co A W (Calif)
Indikon Inc
Industrial Instruments
Industro Transistor
Kearfott Div
Land-Air Inc
Lavoie Labs
Lumatron Electronics
Measurements Research
Millivac Instr Inc.
Minco Products
Missimers Inc
Monitor Systems Inc
National Standard Elx
Optimized Devices
Philco Corp
Precision Apparatus Co
Quan-Tech Labs
Rixon Electronics
Rodale Electronics
Sonex Inc
Stromberg-Carlson Co
Tektronix Inc
Tenco Electronics
Texas Instruments Inc
Trak Electronics
Transistor Electronics
Waters Mfg Inc

DISTORTION METERS

Atlantic Research
Audio Instrument Co
Avtron Mfg
B and K Instruments
Barker & Williamson
Boonton Electronics
Canadian Marconi
Chadwick-Helmuth
Cubic Corp
Daven Co
Electronic Applications
Electrosolids Corp
Freed Transformer
General Radio
Heath Co
Hewlett-Packard
Marconi Instruments
Philco Corp
Proboscope Co

DOLLIES, Oscilloscope and Laboratory

Analab Instrument
Artisan Metal Works
Federal Mfg & Engrg
Projects Unlimited
Technabilt
Technical Service Corp
Tektronix Inc
Western Devices

ELECTRIC POWER GENERATION INSTRUMENTS, including Power Analyzers, Frequency and Phase Instruments, Substation Instruments

Anadex Instruments Inc
ASEA Electric Inc
Assembly Products Inc
Associated Research
Avtron Mfg
Biddle Co James G
Bristol Co
Communication Meas Lab
Consolidated Diesel
Control Electronics
Contronics
Datalog Div
Daystrom/Weston
Dice Co J W
Eastern Specialty Co
Edison Industries T A
Edwards Co
Electric Regulator
Electronic Specialty Co
Engelhard Industries
Esterline-Angus
Federal Pacific
Fischer & Porter Co
Fluke Mfg Co
GE Apparatus Sales Div
GE Ind Control Dept
Gulton Industries
Hathaway Instruments
Hickok Electrical Instr
Industrial Test Equip
Julie Research Labs
Kahn & Co
Kearfott Div
Knopp Inc
Leeds & Northrup
M-H Brown Instrs Div
Motorola Military Elx
Natl Electronics (Wyo)
North Atlantic Indus
Northeastern Engrg
Opad Electric Co
Orion Electronic Corp
Probescope Co
RCA Systems Support
Sangamo Electric Co
Sensitive Research Instr
Statham Instruments
System Analyzer
Talley Corp
Thermo Electric Co
Trygon Electronics
Universal Match
Varo Mfg Co
Vidar Corp
Voltron Products
Westinghouse Electric
Westronics Inc
Winslow Electronics Inc

ELECTRICAL INDICATORS, see also Ammeters, Voltmeters, etc.

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Airpax Electronics
Assembly Products Inc
Beckman/Berkeley Div
Calibration Standards
DeJur-Amsco Corp
Dittmore Freimuth
Electric Des & Mfg
Engelhard Industries
Fielden Electronics
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General Meters
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Greibach Instruments
Hexem Inc
Howell Instrs
International Instrs
J-B-T Instruments
Keithley Instruments Inc
Kin Tel Div
King-Seeley Div
Leeds and Northrup
M-H Precision Meter Div
Magnetic Instr Co
Meters Inc
Natl Electronics (Wyo)
Orion Electronic Corp
PRD Electronics
Pace Electrical Instrs
Parker Electrical Instr
Physical Sciences Corp
Pyramid Instr Corp
Q V S Inc
Ram Meter Inc
Rowan Controller Co
Sanborn Co
Sensitive Research Inst
Simpson Electric Co
Sittler Corp
Sun Electric Corp
Sylvania Lighting Prods
Triplett Electl Instr
Voltron Products
WacLine Inc
Yokogawa Electric Works

ELECTRICAL INSTRUMENT CALIBRATORS and TEST SETS for Voltage, Current, etc.

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Artronic Instr Co
Avtron Mfg
B & K Mfg Co
Bendix Scintilla Div
British Industries
Bristol Company
Bruno-New York Inds
Canadian Marconi
Carter Mfg
Chesapeake Instr
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Customline Control Panel
Davenport Mfg
Daystrom/Weston
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DJECO
Dynage Inc
Eastern Specialty Co
Electro Instruments
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Electronic Instrument
Elin Division
Erie Pacific
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GE Apparatus Sales Div
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Gertsch Products Inc
Gordon Enterprises
Gray Instrument
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Hewson Co Inc
Holt Instrument Labs
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Industrial Instrs Inc
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Knopp Inc
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Measurements Research
Merz Engrg Inc
Millivac Instr Inc
M-H Brown Instrs Div
M-H Precision Meter Div
M-H Rubicon Instrs Div
Muirhead Instrs
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Narda Corp
Non-Linear Systems
North Hills Electronics
Northeastern Engrg
Orion Electronic Corp
Pearce-Simpson Inc
Peschel Electronics
Philco Corp
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Pickard & Burns
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Probescope Co
RCA Systems Support
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Radio Frequency Labs
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Shallcross Mfg Co
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Small Motors Inc
Smith-Florence Inc
Sorensen & Co
States Company
Sunshine Scientific
Tektronix Inc
Telechrome Mfg Corp
Thermo Electric
Trio Laboratories
Trygon Electronics
Ultronix Inc
United Control Systems
United Mfg Co
Voltron Products
We-Instr & Control Sys
Weinschel Engrg
Westberg Mfg Co
Westinghouse Electric
Winslow Electronics Inc
Wintronics

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Applied Physics Corp
Applied Radiation Corp
Argonaut Asso
Curtiss-Wright
E-H Research Labs
Ercona Corp
General Radio
Gyra Electronics
Halex Inc
Hexem Inc
Keithley Instruments Inc
Klinger Scientific
Loe Engrg Co
Milton Roy Co
Nuclear-Chicago
Philbrick Researches
Philco Corp
Special Instruments Lab
Sticht Co Herman
Victoreen Instr Co

FAULT LOCATORS & RECORDERS, Communication and Lines, Electrical Resistance

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Associated Research
Automatic Timing & Contls
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Borden Engrg Co
Contronics
Davenport Mfg
Daystrom/Weston
Designers for Industry
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Epic Inc
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General Devices
Gray Instrument
Greibach Instrument
Industrial Instrs Inc
Instrument Laboratories
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M-H Rubicon Div
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Multi-Amp Electronic
Opad Electric Co
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Sensitive Research Inst
Sierra Electronic Corp
Smith-Florence Inc
Sorensen & Co
Techni-Rite Elx
Tobe Deutschmann Corp
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FIELD-STRENGTH MEASURING SETS, Electromagnetic Field (see also Magnetic Field)

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Carter Company J C
Empire Devices
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Halex Inc
Harmon Electronics
Instrument Systems Corp
Land-Air Inc
Magnaflux Corp
Magnetic Shield Div
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Simpson Electric
Stoddart Aircraft
Sunshine Scientific
Telerad Div
United Shoe Machinery
Vitro Electronics
Weinschel Engrg

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Gulton Industries
Magnaflux Corp
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Carter Motor Co
Communication Meas Lab
Control Electronics
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Georator Corp
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Kavamil Co
Leach Corp
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NJE Corp
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P and H Electronics
Philco Corp
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Radio Frequency Labs
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Rixon Electronics
Robbins & Myers
Sorensen & Co
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When Using This Guide

look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

ELECTRONICS

THE BIG LOOK in small panel meters

50
100
150
0
D-C AMPERES
200
GENERAL ELECTRIC
TYPE DO-91
SHUNT EXTERNAL
CAT. 514X18

designed for style

Distinctively styled for the 60's, General Electric BIG LOOK panel meters offer you modern *appearance*, excellent *readability*, and improved *reliability* . . . for all your products and equipment. Complete line includes 2½, 3½, and 4½-inch AC, DC and rectifier designs . . . all 2% accuracy class (rectifier types, 3%). Self-shielded DC mechanism eliminates interaction, ends special calibration, minimizes effect of stray magnetic fields. Sealed cases on 2½ and 3½-inch meters protect internal mechanism in corrosive atmospheres . . . 4½-inch design features snap-on, snap-off cover. Priced right, BIG LOOK panel meters are available from stock for on-time delivery. Like to know more? Contact your nearest G-E Sales Office or Distributor. For informative bulletin GEA-7034, write to Sect. 597-13, General Electric Co., Schenectady 5, N. Y. In Canada, contact Canadian G.E. Co., Ltd., 940 Lansdowne Ave., Toronto 4, Ontario.

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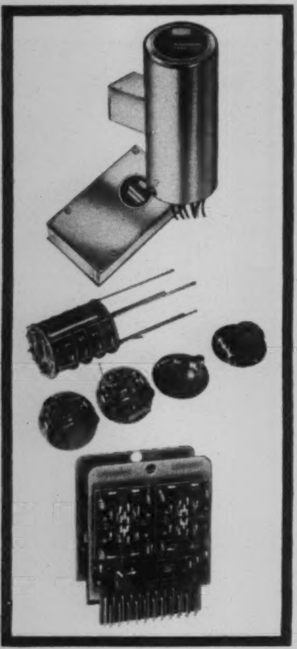

frequency

oscillators · secondary and portable standards · converters (frequency and subminiature DC-DC voltage) · R. F. oscillators · frequency control systems · special developments

time

programmers · intervalometers · timers · digital clocks · on-missile (launch vehicle and payload) command program timers (fixed and variable instruction) · electromechanical and solid state · single and multi-channel · time reference and memory command systems · special developments

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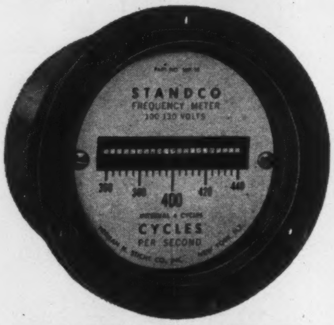

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JAMES G. BIDDLE CO. PHILA. PA. U.S.A.

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.... in Switchboard, Miniature and Portable types
.... indicate alternating current frequency from 15 up to 1500 cycles per second
.... applicable to pulsating or interrupted D-C as well as A-C supply circuits

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8-523

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Phaostron Instr & Elx
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Radar Design Corp
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Solid State Electronics
Sticht Co Herman
Sun Electric Corp
Tektronix Inc
Telerad Div
Telex/Lumen
United Mineral & Chem
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Vectrol Engrg
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Vidar Corp
Voltron Products
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Waugh Engrg Co
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Winslow Electronics Inc

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Boonshaft and Fuchs
Brush Instruments Div
Canadian Marconi
Chadwick-Helmuth
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Gerber Scientific Inst
Gulton Industries
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Dynamics Instrumentation
Engis Equipment
Epic Inc
Ercona Corp
Federal Pacific
GE Apparatus Sales Div
Geotechnical Corp
Gordon Enterprises
Greibach Instruments
Hamilton Watch Co
Hathaway Instruments
Hickok Electrical Instr
Howell Instr
Kin Tel
Leeds & Northrup
Massa Div
Meters Inc
Midwestern Instrs
M-H Heiland Div
M-H Rubicon Div
Offner Electronics Inc
Pace Electrical Instrs
Philco Corp
Photron Instr Co
Physics Research Labs
Pimex Inc
Precision Apparatus Co
Sanborn Company
Shallcross Mfg Co
Sensitive Research Inst

MEASUREMENTS'
"FAMOUS FIRSTS"

1939	MODEL 54 STANDARD SIGNAL GENERATOR—Frequency range of 100 Kc. to 20 Mc. The first commercial signal generator with built-in tuning motor.
	MODEL 65-B STANDARD SIGNAL GENERATOR—This instrument replaced the Model 54 and incorporated many new features including an extended frequency range of 75 Kc. to 30 Mc.
1940	MODEL 58 UHF RADIO NOISE AND FIELD STRENGTH METER—With a frequency coverage from 15 Mc. to 150 Mc. This instrument filled a long wanted need for a field strength meter usable above 20 Mc.
	MODEL 79-B PULSE GENERATOR—The first commercially-built pulse generator.
1941	MODEL 75 STANDARD SIGNAL GENERATOR—The first generator to meet the need for an instrument covering the I.F. and carrier ranges of high frequency receivers. Frequency range, 50 Mc. to 400 Mc.
1942	SPECIALIZED TEST EQUIPMENT FOR THE ARMED FORCES. WORLD WAR II.
1943	MODEL 84 STANDARD SIGNAL GENERATOR—A precision instrument in the frequency range from 300 Mc. to 1000 Mc. The first UHF signal generator to include a self-contained pulse modulator.
1944	MODEL 80 STANDARD SIGNAL GENERATOR—With an output metering system that was an innovation in the field of measuring equipment. This signal generator, with a frequency range of 2 Mc. to 400 Mc. replaced the Model 75 and has become a standard test instrument for many manufacturers of electronic equipment.
1945	MODEL 78-FM STANDARD SIGNAL GENERATOR—The first instrument to meet the demand for a moderately priced frequency modulated signal generator to cover the range of 86 Mc. to 108 Mc.
1946	MODEL 67 PEAK VOLTMETER—The first electronic peak voltmeter to be produced commercially. This new voltmeter overcame the limitations of copper oxide meters and electronic voltmeters of the r.m.s. type.
1947	MODEL 90 TELEVISION SIGNAL GENERATOR—The first commercial wide-band, wide-range standard signal generator ever developed to meet the most exacting standards required for high definition television use.
1948	MODEL 59 MEGACYCLE METER—The familiar grid-dip meter, but its new design, wide frequency coverage of 2.2 Mc. to 420 Mc. and many other important features make it the first commercial instrument of its type to be suitable for laboratory use.
1949	MODEL 82 STANDARD SIGNAL GENERATOR—Providing the extremely wide frequency coverage of 20 cycles to 50 megacycles. An improved mutual inductance type attenuator used in conjunction with the 80 Kc. to 50 Mc. oscillator is one of the many new features.
1950	MODEL 111 CRYSTAL CALIBRATOR—A calibrator that not only provides a test signal of crystal-controlled frequency but also has a self-contained receiver of 2 microwatts sensitivity.
1951	MODEL 31 INTERMODULATION METER—With completely self-contained test signal generator, analyzer, voltmeter and power supply. Model 31 aids in obtaining peak performance from audio systems, AM and FM receivers and transmitters.
1952	MODEL 84 TV STANDARD SIGNAL GENERATOR—With a frequency range of 300-1000 Mc., this versatile new instrument is the first of its kind designed for the UHF television field.
1953	MODEL 59-UHF MEGACYCLE METER—With a frequency range of 420 to 940 megacycles, the first grid-dip meter to cover this range in a single band and to provide laboratory instrument performance.
1954	FM STANDARD SIGNAL GENERATOR. Designed originally for Military service. The commercial Model 95 is engineered to meet the rigid test requirements imposed on modern high quality electronic instruments. It provides frequency coverage between 50 Mc. and 400 Mc.
1955	RADIO INTERFERENCE MEASURING SET. An aperiodic noise meter useful to 1000 Mc.
1956	MODEL 505 STANDARD TEST SET FOR TRANSISTORS. A versatile transistor test set which facilitates the measurement of static and dynamic transistor parameters.
1957	RADIO FIELD STRENGTH AND INTERFERENCE MEASURING SET. A tuned radio interference and field strength set covering the frequency range of 150 Mc. to 1000 Mc.
1958	MODEL 560-FM STANDARD SIGNAL GENERATOR—First successful FM Signal Generator using solid state modulator.
1959	MODEL 700 FREQUENCY METER—A completely new concept of frequency measurement. An instrument capable of direct and continuous reading to one cycle in 25-1000 Mc range.
1960	MODEL 139 TEST OSCILLATOR—A compact, versatile, and portable instrument for rapid and accurate alignment of I.F. circuits in all types of radio receivers.
1961	MODEL 760 STANDARD FREQUENCY METER—An accurate, simple to operate, direct read-out, portable instrument designed for servicing two-way mobile radio equipment.

MEASUREMENTS

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PULSE WAVEFORM GENERATOR

Parabam's Model P-1 Pulse Waveform Generators provide virtually transient free **square, triangular and sine waves plus variable length pulses** • will drive power transistors and relays, electrohydraulic valves, etc. directly from output terminals • pulse length 50 micro sec. to 90 sec. • square, triangular and sine waves 0.01 cps to 2,000 cps • frequency stable within 1%.

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Talley Corp
Taper Micrometer Corp
Techni-Rite Elx
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American Electronics Inc
Asea Electric Inc
Electronic Specialty Co
Fairbanks-Morse
GE Apparatus Sales Div
Kohler Co
System Analyzer
Talley Corp
Tapco Div
Varo Mfg Co

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Abacus Inc
Advanced Measurement
Airesearch Mfg Div
Airtronics Inc
Alfred Electronics
Allied Radio
Allison Laboratories
Allis-Chalmers
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Arenberg Ultrasonic
Argonaut Asso
Artroninc Instr Co
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Bulova Research
Burmac Electronics
Burr-Brown Res
Burroughs Corp
Canadian Marconi
Carol Electronics
Chadwick-Helmuth
Clegg Labs
Clough Brengle
Columbia Electric
Communication Meas Lab
Control Equipment Corp
Convair Instruments
Cooper Development
D & R Ltd
Dage Div
Dalmotor Div
Davenport Mfg
Donner Scientific
DJECO
DuMont Labs Allen B
Dymec Inc
E-H Research Labs
Electro-Optical Instrs
EMP Electronics Res Lab
Eicor Div
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Electric Indicator
Electric Tachometer
Electro Mechanical Res
Electro-Mechano Co
Electronic Instrument
Electronic Specialty Co
Electronic Tube
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Frequency Standards
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General Radio
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Hathaway Instruments
Haydon Co A W
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Hewlett-Packard
Hickok Electrical Instr
Hill Electronics
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Ling Electronics
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Marathon Electric
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Rixon Electronics
Rotating Components
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Servo Systems Co
Sierra Electronic Corp
Simplex Time Recorder
Simpson Electric
Small Motors Inc
Spectrum Instruments
Spencer-Kennedy Labs
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Telerad Div
Telonic Engineering
Trad Electronics
Trak Electronics
Trak Microwave Corp
Triplett Electl Instr
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Universal Match
Van Norman Industries
Varo Mfg Co
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Walkirt Co
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Waveline Inc
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B-113

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FEBRUARY, 1961

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MEG TYPE INSULATION TESTERS

HAND-OPERATED
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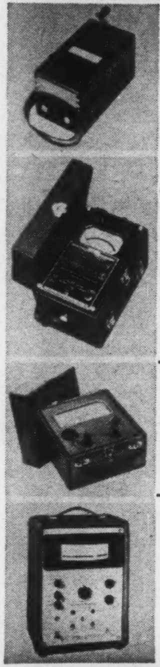

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MINOR—Dwarf Size
500V DC, 100 Megohms
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Constant Voltage 500V
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STANDARD—Heavy Duty
500/1000V DC
up to 2000 Megs.

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200/20,000 Ohms.

PLUG IN TYPE

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115V AC line operated
500/1000V DC
100/1000/2000 Megohms

ELECTRONIC TYPE

20,000,000 Megohms
MODEL 29A with 11 ranges
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20,000,000 megohms
Test Potentials
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Industrial Instruments Inc.
89 Commerce Road Cedar Grove Essex County N J

CIRCLE 193 ON READER-SERVICE CARD

GROUND DETECTORS
Associated Research
Biddle Co James G
Borden Engrg Co
Curtiss Wright
Davenport Mfg
Eastern Specialty Co
GE Apparatus Sales Div
General Railway Signal
Industrial Instruments
Mast Development
Opad Electric Co
Parr Mfgrg Corp
Peschel Electronics
Philco Corp
Princeton Div
Sterling Precision
Sunshine Scientific
Sweeney Mfg Co
WE-Instr & Control Sys
Westinghouse Electric

HIGH-FREQUENCY APPARATUS, including RF Heaters
Airesearch Mfg Div
Amelco Inc
Asea Electric Inc
Bendix Scintilla Div
Electron Arc
Epic Inc
General Electrodynamics
Georator Corp
Hayes Inc, C I
Induction Heating
Laboratory Equip Corp
Lepel High Freq Labs
Lindberg Engrg Co
Manson Labs
Microphase Corp
Miller Co L C
Natl Ultrasonic
P and H Electronics
Philco Corp
Polarad Electronics Corp
Powertron Ultrasonics
Raytheon/Comm Apparatus
Reeve Electronics
Spectra Electronics
Trak Microwave Corp
Varo Mfg Co
Westinghouse Electric

ILLUMINATION INSTRUMENTS, including Exposure Meters, Foot Candle Meters, Photometers, etc.
Automation Dynamics
Boone Instrument
Bush Associates G F
Central Scientific
Curtis Labs
Daystrom/Weston
DeJur-Amsco Corp
Electron Arc
Ercona Corp
GE Apparatus Sales Div
Gordon Enterprises
Gurley W & L E
Leeds & Northrup
Macbeth Inst Corp
Muirhead Instrs
Natl Electronics (Wyo)
Photomechanisms
Physical Sciences Corp
Schlumberger Corp
Spectra Electronics
Sticht Co Herman
Welch Scientific
Wright Machinery Co

ILLUMINOMETERS, Macbeth
Leeds & Northrup

IMPEDANCE MEASURING INSTRUMENTS, including Resistance Meters, Z-Angle Meters etc.
Acton Laboratories
Alford Mfg
Allied Radio
Associated Research
Baird-Atomic
Barnes Development Co
Bendix Scintilla Div
Borden Engrg Co
Bristol Co
British Industries
Bulova Research
Canadian Marconi
Central Scientific
Clegg Labs
Consolidated Airborne
Corbett Science Labs
Davenport Mfg
Devar Systems
Douglas Microwave Co
Dytronics Co
Elco Electronic Instr
Electro Instruments
Electro-Measurements
Electronic Applications
Fluke Mfg Co
Freed Transformer
GE Apparatus Sales Div
General Microwave Corp
General Radio
Gertsch Products Inc
Greibach Instrument
Haydon Co A W (Calif)
Hewlett-Packard
Industrial Instrs Inc
Industrial Test Equip
Julie Research Labs
Kearfott Div
Keithley Instruments Inc
Lavoie Labs
Leeds & Northrup
Marconi Instruments
Millivac Instr Inc
Model Engrg & Mfg Corp
Muirhead Instrs
Multi-Amp Electronic
Narda Corp
North Atlantic Indus
Optimized Devices
Orion Electronic Corp
Philco Corp
Precision Apparatus Co
Rinco Inc
Rodale Electronics
Rohde & Schwarz
Ruge Associates
Scientific-Atlanta
Simpson Electric Co
Somerset Radiation Lab
Sterling Instrument Div
Sweeney Mfg Co
Technology Instr (Mass)
Tektronix Inc
Trio Laboratories
United Mineral & Chem
United Shoe Machinery
Virginia Electronics
Waldom Electronics
Western Electronic Prods
Westinghouse Electric
Winslow Electronics Inc

INDUCTORS, Fixed
Aerovox Corp
Barker & Williamson
British Industries
ACDC Electronics Inc
Burmac Electronics
Burnell & Co
Capitron Div
Carad Corp
Carol Electronics
Carruthers & Fernandez
Coast Coil
Communication Accessories
Components Corp
Corning Glass
Dittmore-Freimuth
Electron Arc
Ferranti Electric
Freed Transformer
Gates Radio Co
General Instrument Corp
General Radio
International Resistance
K V Transformer
Kelvin Electric
Leeds & Northrup
Magnetico Inc
Millen Mfg Co
Muirhead Instr
North Hills Electronics
Pacific Instrument Co
Philco Corp
Polyphase Instr Co
Raytheon/Comm Apparatus
Raytheon/Microwave
Rixon Electronics
Servomechanism Inc
Solid State Electronics
Standard Winding
T T Electronics
Toroids Unlimited Inc
Torwico Electronics
Transformers Inc
United Transformer
Valor Instruments
Vari-L Co
Varo Mfg Co
Wells Electronics
Wheeler Electronic
Wickes Engrg & Constr

INDUCTANCE INDICATORS
Bowmar Instrument
Eico Electronic Instr
Electro Instruments
Freed Transformer
GE Apparatus Sales Div
General Radio
Industrial Transformer
Leeds & Northrup
Muirhead Instr
Philco Corp
Rohde & Schwarz
Servomechanism Inc
Simpson Electric
United Mineral & Chem

INSULATION TESTERS (see also Resistance Indicators, Insulation)
Associated Research
Astral Electronics
Automation Dynamics
B and K Instruments
Barnes Development Co
Biddle Co James G
Bracke-Seib X-Ray
Cincinnati Sub Zero
Curtiss Wright
Custom Scientific Instrs
Davenport Mfg
Daystrom/Weston
Delsen Corp
Designers for Industry
Dit Mco Inc
Di-Tran Corp
Eastern Specialty Co
Electro Instruments
Electrospace Corp
Epic Inc
Freed Transformer
General Radio
Greibach Instrument
Haydon Co A W (Calif)
Hewson Co Inc
Hexem Inc
Hitachi Ltd
Holtzer-Cabot Div
Ideal Industries
Industrial Instrs Inc
Industrial Test Equip

DESIGN and PRE-PURCHASE DATA

on available measurement and control devices and systems—yours for the looking—in the

PRODUCT ADS in your I&CS BUYERS' GUIDE

..HIGH VOLTAGE TESTING
of CABLES, MOTORS, GENERATORS
and All Electrical Equipment

Mobile D-C HYPOT®

Measures

Dielectric Strength

Insulation Resistance

Dielectric Absorption

Rugged . . Mobile . . for Production, Installation and Maintenance Testing

Output . . 120 kv models provide up to 5000 microamperes d-c. 75 and 45 kv models offer up to 10 ma, d-c.

115v A-C Line . . Input through three-conductor power cord with standard two prong plug and grounding clip.

Self-Contained, Fully Portable . . Single mobile housing with rubber tired wheels and push handle contains metering circuitry and high voltage supply (oil immersed above 45 kv).

Safe, Simple Operation . . Direct reading of insulation leakage current. Fully interlocked, cabinet grounded, output cable shielded . . to protect operator and equipment.

for Every Application . . a HYPOT® Test Set

Heavy Duty HYPOTS®
A-C or D-C, to 150 kv.

Mobile HYPOTS®
A-C to 30 kv, 10 kva
D-C to 120 kv, 10 ma

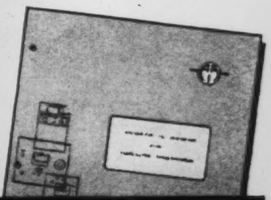
Bench Type HYPOTS®
A-C to 35 kv, 2 kva
D-C to 45 kv, 25 ma

Portable HYPOTS®
A-C to 10 kv, 230 va
D-C to 5 kv, 2 ma

HYPOT® Insulation Materials Tester
Models offer up to 60 kv at 2 kva . . with test fixtures, automatic rate of rise and other controls to meet ASTM, MIL and Federal test specifications.

Write for Manual J-67

"Methods for Insulation Testing . . Engineering . . Production . . Maintenance



4-35.6

ASSOCIATED RESEARCH, Incorporated
"Electrical Testing Instruments Since 1936"

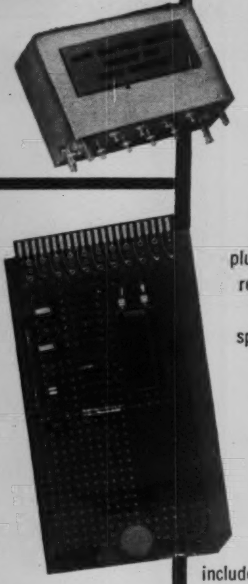
3766 W. Belmont Ave., Chicago 18, Illinois

CIRCLE 194 ON READER-SERVICE CARD

VALPEY crystal controlled

PACKAGED OSCILLATORS

a stable solid state source for systems

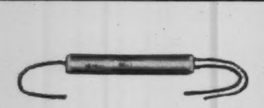


Temperature controlled packaged oscillators, either sealed units or plug-in printed circuit modules, offer the reliability and stability of quartz crystal control over a frequency spectrum of 60 cps to 20 MC. Stabilities from 0.1% to 0.001% are standard, custom designed units stable to 5 parts in 10^8 are available as complete packages. Features include: small size, temperature range from —65°C to 125°C, ruggedized units to meet severe environmental conditions. Outputs available include: standardized pulse, square wave or stable sine-wave — working into load impedances from 50 ohms and up depending on frequency range. The Valpey engineering staff will be pleased to submit quotations according to your specifications for packaged oscillator applications including pulsed or gated circuits, frequency sources and standards, time bases or other advanced circuitry needs. Specification sheets on request.

VALPEY QUARTZ CRYSTALS

Crystals in all frequency ranges can be manufactured or developed to meet long term stability and other special requirements. Miniature and subminiature frequency control crystals for commercial or military applications are available to 125 MC. High frequency crystals for lattice type and single signal filters are available in frequency range from 1500 KC to 23,000 MC.

Ruggedized Low Frequency Oscillator and Filter Crystals compactly designed for applications where space is important and environmental conditions severe. Frequency range 5 KC to 350 KC.



PC-1

For complete information on Valpey Crystals request catalog

Craftsmanship in crystals since 1931

Quartz Crystals • Ovens • Precision Optics • Crystals for Ultrasonics and Delay Lines • Packaged Oscillators Fabrication of Rods for LASER

VALPEY CRYSTAL CORP.
HIGHLAND ST., HOLLISTON, MASS.
Tel. GArden 9-4851, 9-4854

CIRCLE 195 ON READER-SERVICE CARD

Industrial Transformer
Janco Corp
Keithley Instruments Inc
Kilovolt Corp
Lavoie Labs
Manson Labs
Martindale Electric Co
Meters Inc
Muirhead Instrs Inc
Multi-Amp Electronic
Natl Electronics (Wyo)
Opad Electric Co
Optimized Devices
Pearce-Simpson Inc
Peschel Electronics
Philco Corp
Physics Research Labs
Precise Measurements Co
Radio Frequency Labs
Rodale Electronics
Rohde & Schwarz
Sanborn Company
Shallcross Mfg Co
Slaughter Co Inc
Spellman High Voltage
States Company
Sticht Co Herman
Strand Engrg Co
Sunshine Scientific
Tektronix Inc
United Mineral & Chem
Van Norman Industries
Wickes Engrg & Constr
Winslow Electronics Inc
Yokogawa Electric Works

INTEGRATORS, Electrical and Electronic

Abacus Inc
Airpax Electronics
Allegany Instrument
American Bosch Arma
American Electronics Inc
Anadex Instruments Inc
Andersen Labs
Beckman/Helipot Div
Biophysical Electronics
Bulova Research
Computers Inc
Computer Systems Inc
Control Technology
Cramer Division
Daystrom/Weston
Di/An Controls
Dian Laboratories
DJECO
Donner Scientific
Dresser Elx/S.E Div
Dymec
Dynamics Instrumentation
E-H Research Labs
Elcor Inc
Electro Instruments
Electronic Associates
Embree Electronics
Feedback Controls Inc
Ford Instr
Franklin Systems
General Mills Inc
GPE Controls
Hagan Chem & Controls
Hallikainen Instrs
Hamilton Standard Div
Haydon Co A W
Hughes Aircraft
Infrared Industries
Instron Engrg
Kearfott Div
Librascope Div
Link Div
Loe Engrg Co
Maxson Electronics Corp
MacLaren & Co F B
M-H Brown Instrs Div
M-H Military Prods Grp
Melcor Electronics Corp
National Standard Elx
Norden Division
PM Electronics
Panoramic Radio Prods
Philbrick Researches Inc
Philco Corp
Plug-In Instruments Inc
Power Tronic Systems
Reeves Instr Corp
Republic Flow Meters
Royson Engrg Co
Schlumberger Corp
Scientific-Atlanta
Sierra Research Corp
Sperry Utah Co
Summers Gyroscope
United Engineers Inc
Vidar Corp
Waugh Engineering Co
Wheelco Indus Instrs

INVERTERS, DC to AC

Abrams Instrument
Accurate Instrument
ACDC Electronics Inc
Advanced Electronics
Airborne Accessories
Airesearch Mfg Co
Airpax Electronics
Allegany Instrument
Alto Scientific
American Bosch Arma
American Electronics Inc
Amer Television & Radio
Arnold Magnetics Corp
Automation Electronics
Barker & Williamson
Bergen Labs Inc
Brach Mfg
Bristol Co
Brunswick Instruments
Capitron Div
Carruthers & Fernandez
Carter Motor Co
Collins Electronics
Communication Meas Lab
Control Electronics
Contronics
Cubic Corp
Data Products Co
Davenport Mfg
Daven Co
DJECO
Dresser Elx/SIE Div
Dynage Inc
Eicor Div
Electric Regulator
Electrodynamic Instr
Electronic Dev Corp
Electronic Specialty Co
Electronic System Dev
Electrosolids Corp
Engineered Magnetics
GE Apparatus Sales Div
GE Specialty Control
General Devices
General Electrodynamics
Geotechnical Corp
Gyrex Corp
Hamilton Standard Div
Harrel Inc
Hathaway Instruments
Hoover Electric Co
Hoover Electronics
Hydro-Aire Co
IMC Magnetics
Interelectronics
Jack & Heintz Inc
Kavamil Co
Kidde Electronics Labs
Kinetics Corp
Kupfrian Mfg Corp
Leach Corporation
Magnetic Controls Co
Magnetico Inc
Mallory & Co P R
Maxson Electronics Corp
Milro Controls
Model Engrg
NJE Corp
Norbatrol Electronics
Opad Electric Co
Oster Mfg John
Pacific Instrument Co
Perkin Engrg Corp
Pesco Products Div
Philco Corp
Power Controls Div
Power Designs
Power Sources Inc
Power-Tronic Systems
RHO Engineering
R S Electronics Corp
Sangamo Electric Co
Solid State Electronics
Sorensen & Co
Spectrol Electronics
Standard Electric Time
Summers Gyroscope
Tapco Div
Tech Apparatus Bldrs
Telechrome Mfg Corp
Telex/Lumen
Thordarson-Meksner
Torwico Electronics
Uniwave Inc
Valor Instruments
Vapor Heating Corp
Varo Mfg Co
Westamp Inc
Wheeler Electronic
Wickes Engrg & Constr
Wincharger Corp

JUNCTION BOXES

ACDC Electronics Inc
Adalet Mfg Co
Airesearch Mfg Div
Ampco Mfg Co
Bernco Engrg Corp
Bud Radio
Control Technology
Designs for Tomorrow
Dittmore-Freimuth
Hoffman Engineering
Hoover Electronics
Howell Instrs
Joy Mfg Co
Keystone Mfg Co
Molex Products
Rixon Electronics
Telectro Industries
Thermo Electric
Waber Electronics
Wells Electronics

KVA INDICATORS and/or RECORDERS

Bristol Co
Daystrom/Weston
Esterline Angus
GE Apparatus Sales Div
Howell Instrs
Leeds & Northrup
M-H Brown Instrs Div
Natl Electronics (Wyo)
Philco Corp
Projects Unlimited
Sangamo Electric Co
Sensitive Research Instr
Tektronix Inc
Texas Instruments Inc
Voltron Products
Westronics Inc

LINE CURRENT TEST SETS

Capcon Inc
Daystrom/Weston
Eastern Specialty Co
Federal Pacific
Klinger Scientific
Philco Corp
Sensitive Research Instr

LOAD INDICATORS and/or RECORDERS and CONTROLLERS, Electrical (see also Power Factor)

Allegany Instrument
Amer Meas & Control
Automatic Timing & Contls
Baldwin-Lima-Hamilton
Bristol Co
Brush Instruments Div
Bytrex Corporation
Chatillon John
Daystrom/Weston
Dittmore-Freimuth
Electric Regulator
Federal Pacific
GE Apparatus Sales Div
Gilmore Industries
Hathaway Instruments
Hickok Electrical Instr
Jordan Controls
Labora'ory for Electronics
Leeds & Northrup
Machinery Electrification
M-H Brown Instrs Div
Mach Electrification
Milro Controls
Performance Measurements
Philco Corp
Sensitive Research Instr
Simpson Electric
Techni-Rite Elx
Texas Instruments Inc
Trott Electronics
United Control Systems
WE-Instr & Control Sys
Westinghouse Electric
Westronics Inc
Wheelco Indus Instrs

MAGNET TESTERS

Annis Co R B
Bell Inc, F W
Carter Company J C
Indiana General Corp
Indiana Steel Prods
Instrument Systems Corp
Permag Corp
Philco Corp
Potter Instr Co
Radio Frequency Labs
Rawson Electrical Instr
Sensitive Research Instr
Shallcross Mfg Co
Sunshine Scientific

MAGNETIC FIELD-STRENGTH INDICATORS, including Fluxmeters, Gaussmeters, Magnetometers, etc.

Annis Co R B
Bell Inc, F W
Budd Co Inst Div
Daystrom/Weston
Dyna-Empire Inc
Carter Company J C
Central Scientific
Halex Inc
Harvey-Wells
Hickok Electrical Instr
Instrument Systems Corp
Leeds & Northrup
M-H Military Prods Grp
Magnuflux Corp
Magnetic Shield Div
M-H Boston Div
Ohio Semiconductors
Permag Corp
Philco Corp
Radio Frequency Labs
Rawson Electrical Instr
Schonstedt Engrg Co
Scientific-Atlanta
Sensitive Research Inst
Sunshine Scientific
Telerad Div
Varian Associates
Weinschel Engrg
Wrisley Engineering Inc

MICROWAVE INSTRUMENTATION and EQUIPMENT, including UHF Plumbing, Waveguides (see also VSWR Indicators, also Frequency Indicators, Microwave, etc.)

ACF Electronics
Adler Electronics
Ainslie Corp
Airborne Instr Lab
Aircraft Armaments
Airtron Inc
Alford Mfg
Amerac Inc
American Electronic Labs
Antenna & Radome Res
Applied Dynamics
Arra Electronics
Automatic Electric
Automatic Switch Co
BJ Electronics
Bendix Radio Div
Bendix Scintilla Div
Bendix York Div
Blonder Tongue Labs
Bogart Mfg Corp
Borg-Warner Controls
British Industries
Bruno-New York Inds
Brunswick Instruments
Budd Stanley
Budelman Electronics
Calif Technical Indus
Canadian Marconi
Chemalloy Electronics
Computer Measurements
Control Data Corp
Control Electronics
Cooper Development
Cubic Corp
Custom Components Inc
Demornay-Bonardi
Designers for Industry
Diamond Antenna
Dittmore-Freimuth
Dorne and Margolin
Douglas Microwave Co
Dymec
Dynatronics Inc
Electro Impulse Lab
Electronic Applications
Electronic Specialty Co
Elx Communications Inc
Empire Devices
Energy Kontrols
Engis Equipment
FXR Div
Ferrotec Inc
Frequency Standards
Gar Precision Parts
General Communication
General Microwave Corp
General Radio
Gertsch Products Inc
Gombos Co, John
Hewlett-Packard
Hughes Products
Kane Engineering Labs
Kay Electric
Kearfott Div

Kings Electronics
Klinger Scientific
Laboratory for Electronics
Land-Air Inc
LEL Inc
Litton Systems
Lumatron Electronics
Manson Labs
Maxson Electronics Corp
McIlvaine O T
McMillan Electronic
Melabs Inc
Melpar Inc
MICO Instr Co
Micromat Co
Microphase Corp
Microwave Associates
Microwave Dev Lab
Model Engrg
Motorola C & E
Morotola Military Elx
Narda Corp
National Standard Elx
New England Instr
Northeast Scientific
Orion Electronic Corp
PRD Electronics
Philco Corp
Phelps Dodge Copper Prod
Philco/Lansdale
Pitometer Log Corp
Polarad Electronics Corp
Premier Microwave
RCA Defense Electronic
RCA Industrial Elx
RMS Associates
R S Electronics Corp
Radar Design Corp
Radar Measurements Corp
Rantec Corp
Resdel Engineering
Sage Laboratories
Sanders Associates
Scientific-Atlanta
Sierra Electronic Corp
Slocomb Co J T
Somerset Radiation Lab
Spectra Electronics
Sperry Microwave
Stavid Div
Stoddart Aircraft
Strand Engrg Co
Sylvania Electronic Sys
TRG Inc
Tapco Group
Tech Appliance Corp
Telonic Engineering
Telechrome Mfg Corp
Tele-Dynamics Div
Telerad Div
Trak Electronics
Trak Microwave Corp
Transco Products
Trinity Equipment
Turbo Machine Co
United Shoe Machinery
Uniwave Inc
Valor Instruments
Van Norman Industries
Voi-Shan Electronics
WacLine Inc
Watkins-Johnson Co
Waveline Inc
Weinschel Engrg
Western Inter
Wiltron Co
Zenith Optical Lab

MODULATION INDICATORS

A R F Products Inc
Automatic Timing & Contls
Daystrom/Weston
Empire Devices
Gates Radio Co
General Radio
Gertsch Products Inc
Instrument Corp of Fla
Lampkin Labs
Land-Air Inc
Marconi Instruments
New London Inst
Philco Corp
Probescope Co
Solid State Electronics
Telectro Industries
Waltham Electronics
Waterman Products

MODULATORS, MAGNETIC

ACDC Electronics Inc
Airpax Electronics
Applied Electronics
American Bosch Arma
Baird Atomic
Bendix Radio Div
Bendix York Div
Brach Mfg Corp
Bogart Mfg
Burmac Electronics
Cambridge Electronics
Carad Corp
Control Data Corp
General Magnetics
Data Products Co
Dorsett Electronics Inc
Elco Electronic Instr
Electrodynamic Instr
Federal Mfg & Engrg
Hughes Aircraft
Industrial Control Co
Instrument Systems Corp
Kearfott Microwave Div
Litton Systems
Magnetic Research Corp
Melabs Inc
Narda Microwave Corp
Natel Engrg Co
Newton Co
Orion Electronic Corp
Philco Corp
Pearson Electronics Inc
Philbrick Researches
Photobell
Plug-In Instrument Inc
Polyphase Instr Co
Power Controls Div
Rantec Corp
Raytheon/Comm Apparatus
Rixon Electronics

Sierra Research Corp
Solid State Electronics
Space Electronics
Telectro Industries
Torwico Electronics
Vapor Heating Corp
Varo Mfg Co
Voi-Shan Electronics
Vector Mfg Co
Welch Mfg Co W M

MONITORS, RF, FM, etc.

Advanced Measurement
Biddle Co James G
Douglas Microwave Co
Dymec
Electro Impulse
Erie Pacific
General Microwave Corp
General Radio
International Instrs
Kauke and Co Inc
Melabs Inc
Scientific-Atlanta
Sierra Electronic Corp
Syracuse Electronics
Tektronix Inc
Waber Electronics

MULTIPLIERS, Frequency

Abacus Inc
American Electronics Inc
Bogart Mfg
Daystrom/Wiancko
Douglas Microwave Co
General Electronic Labs
General Microwave Corp
General Radio
Gertsch Products Inc
Hughes Aircraft
Microphase Corp
Microwave Associates
New England Instr
PRD Electronics
R S Electronics Corp
Radar Design Corp
Resdel Engineering
Telonic Engineering
Varo Mfg Co

MULTIPLIERS, including High Voltage

Amerac Inc
British Industries
Chadwick-Helmuth
Computers Inc
Computer Systems Inc
Davenport Mfg
Daystrom/Weston
Donner Scientific
Electro Instruments
Electronic Associates
Federal Pacific
General Devices
General Magnetics
Hughes Aircraft
Instrs for Industry
Intectron Inc
Link Div
Manson Labs
Motorola Military Elx
Peschel Electronics
Philbrick Researches
Philco Corp
Phoenix Precision Instr
RHO Engineering
Reeves Instr Corp
Sensitive Research Inst
Simpson Electric
Rowan Controller Co
Varo Mfg Co
WacLine Inc
Wiancko Engrg Co

NETWORK ANALYZERS, Electric, Matching, Pulse Forming

ACDC Electronics Inc
Airborne Instr Lab
Anderson Labs
Burmac Electronics
Clegg Labs
Control Electronics
Daven Co
Dietz Design
Dittmore-Freimuth
GE Apparatus Sales Div
General Microwave Corp
Hughes Aircraft
Kaiser Aircraft & Elx
M-H Military Prods Grp
Model Engrg
Philco Corp
Probescope Co
RCA Systems Support
Rixon Electronics
Stelma Inc
System Analyzer Corp
United Shoe Machinery
Valor Instruments

NOISE FILTERS (see also Filters—Cat 8)

Advanced Electronics
Aerovox Corp
Airborne Accessories
Airborne Instr Lab
Airsearch Mfg Div
Allen Business Machines
All-Tronics Inc
Bendix Utica Div
Bulova Research
Capcon Inc
Carad Corp
Chicago Std Transformer
Control Electronics
Dietz Design
Dollinger Corp
Dorne and Margolin
Dresser Elx/SIE Div
Dytronics Co
Fedtro Inc
Filtron Co
Freed Transformer
General Microwave Corp
General Radio
Globe Industries
Gordon Enterprises
Gudeman Co
Hamilton Standard Div

Hughes Products
Intercontinental Elx
Kavamil Co
Kauke and Co Inc
Kay Electric
Magnasync Mfg Co
McMillan Electronic
Microphase Corp
Mine Safety Appliances
Model Engrg
Motorola Military Elx
North Hills Electric
Nuclear-Chicago
Pacific Instrument Co
Packard Bell
Philco Corp
Relcoil Products
Rixon Electronics
Sangamo Electric Co
Scott Inc H H
Sorensen & Co
Spectrum Instruments
Spencer-Kennedy Labs
Sprague Electric Co
Standard Electronics
Standard Winding
T T Electronics
Taper Micrometer Corp
Technical Products Co
Tobe Deutschmann Corp
United Transformer
Valor Instruments
Varo Mfg Co
Wells Electronics

NULL DETECTORS, Electrical

Acromag Inc
Airpax Electronics
Allegany Instrument
Astrosystems Inc
Beede Electrical Instr
Bergen Labs Inc
Boonton Electronics
Borden Engrg Co
Bristol Co
British Industries
Bulova Research
Datascan Inc
Daystrom/Weston
Donner Scientific
Dynamics Instrumentation
Dytronics Co
Electro-Measurements
Electronic Controls Inc
Epic Inc
Federal Pacific
Fluke Mfg Co
Freed Transformer
General Radio
Geotechnical Corp
Gertsch Products Inc
Halex Inc
Hewlett-Packard
Hexem Inc
Hydel Inc
Industrial Control Co
Industrial Test Equip
International Instrs
Keithley Instruments Inc
Kidde & Co
Kin Tel
Leeds & Northrup
M-H Apparatus Contls Div
M-H Boston Div
M-H Brown Instrs Div
M-H Precision Meter Div
Magnetic Instr Co
Measurements Research
Melcor Electronics Corp
Meters Inc 13
Millitest Corp
Mine Safety Appliances
Moseley Co F L
Muirhead Instrs Inc
Natel Engrg Co
North Atlantic Indus
Phaostron Instr & Elx
Philbrick Researches
Philco Corp
Physical Sciences Corp
Power Tronic Systems
Rohde & Schwarz
Scott Inc H H
Sensitive Research Instr
Shallcross Mfg Co
Sun Electric Corp
Telecomputing Corp
Thermo Electric Co
Theta Instrument
Varo Mfg Co
Weinschel Engrg
Winslow Electronics Inc

OSCILLATORS, Audio-frequency, Microwave, Radio-frequency, Ultrasonic

ACF Electronics
Acoustica Assoc
Advanced Electronics
Advanced Measurement
Airtronics Inc
Alfred Electronics
Allied Radio
Amerac Inc
American Bosch Arma
Applied Radiation Corp
Arenberg Ultrasonic
B and K Instruments
Barker & Williamson
Behlman Engineering
Bendix Radio Div
Biddle Co James G
Borg-Warner Controls
British Industries
Bulova Research
Bulova Watch Co
Burr-Brown Res
Calif Technical Indus
Canadian Marconi
Carol Electronics
Central Scientific
Circo Ultrasonic
Clegg Labs
Collins Radio
Communication Accessories
Computer Measurements
Control Corp

Control Electronics
Control Equipment Corp
Crosby-Teletronics Corp
Delta-f Inc
Di/An Controls
Donner Scientific
Dorsett Electronics Inc
Dukane Corp
Dymec
Dynatronics Inc
Elco Electronic Instr
Electro-Mechanical Res
Electronic Applications
Elin Division
Empire Devices
Fork Standards
Frequency Standards
Frontier Elx
General Controls
General Devices
General Microwave Corp
General Radio
Geotechnical Corp
Gerber Scientific Inst
Gombos Co, John
Gyrex Corp
Hathaway Instruments
Heath Co
Hewlett-Packard
Hill Electronics
Holt Instrument Labs
Hoover Electronics
Hughes Microwave
ITT Industrial Products
Industrial Test Equip
Instrument Labs
Instrs for Industry
Interlectronics
International Elx Res
Kay Electric
Laboratory for Electronics
Lampkin Labs
Lavoie Labs
Leach Corporation
Ling Electronics
Manson Labs
Marconi Instruments
McKenna Labs
Melabs Inc
Microdot Inc
Micro Gee Products
Microphase Corp
Microwave Associates
Midwestern Instrs
Miller Labs
Motorola Military Elx
Muirhead Instrs Inc
National Standard Elx
Natl Ultrasonic
Orion Electronic Corp
P and H Electronics
PRD Electronics
Philamon Labs Inc
Philco Corp
Pickard & Burns
Pitometer Log Corp
Plug-In Instruments Inc
Polarad Electronics Corp
Precision Apparatus Co
Quindar Electronics
RCA Systems Support
R S Electronics Corp
Radio Frequency Labs
Radionics Inc
Reeves-Hoffman Div
Resdel Engineering
Riverbank Labs
Rixon Electronics
Rohde & Schwarz
Scientific-Atlanta
Seco Electronics
Shapiro & Edwards
Sierra Electronic Corp
Solid State Electronics
Southwestern Indus Elx
Specialty Electronics
Spectrum Instruments
Sperry Microwave
Standard Winging
Technical Material
Technical Products Co
Technitrol Engrg
Telechrome Mfg Corp
Tele-Dynamics Div
Telerad Div
Tel-Instrument Elx
Telonic Engineering
Thomas Engrg Inc
Times Facsimile
Trak Electronics
Trak Microwave Corp
United Electrodynamics
United Shoe Machinery
Valpey Crystal Corp
Vari-L Co
Vector Mfg Co
Voi-Shan Electronics
Walkirt Co
Waltham Electronics
Waveforms Inc
Waveline Inc
Weinschel Engrg
Wells Electronics
Westamp Inc
Wickes Engrg & Constr

OSCILLOGRAPHS, Moving-conductor

Century Elx & Instrs
Geotechnical Corp
Gordon Enterprises
Midwestern Instrs
Offner Electronics Inc
Philco Corp
Techni-Rite Elx

OSCILLOGRAPHS, Multi-element

Advanced Technology Labs
American Opitical Co
Brush Instruments Div
Century Elx & Instrs
Consol Electrodynamics
Electrodynamic Instr
GE Apparatus Sales Div
Geotechnical Corp
Gordon Enterprises
Hamilton Watch Co
Hathaway Instruments

NEW transistorized GAUSSMETER MODEL 900

This quality precision built Gaussmeter provides direct reading of flux densities from 0.3 gauss full scale to 30,000 gauss with an accuracy of ±2.5%. Repeatability of readings 0.5%. Ideal for measuring and locating stray fields, plotting variations in strength and performing rapid comparisons of production lots against a standard.

SPECIAL FEATURES

- **The eleven position Range Selector provides full scale readings of 0.3, 1, 3, 10, 30, 100, 300, 1000, 3000, 10,000 and 30,000 gauss.**
- **Significant readings as low as .05 gauss.**
- **Upper range extension, for comparative readings to 100,000 gauss.**
- **Versatile—probes employing either indium arsenide or bismuth elements can be used.**
- **Operates from AC supply or from own self-contained batteries for field use.**

TRANSISTORIZED GAUSSMETER MODEL 874

This instrument was designed to provide industry with a modestly priced, precision instrument for direct reading of DC flux fields from 5 to 30,000 gauss. The 5 position Range Selector provides full scale readings of 0.3, 1, 3, 10 and 30 kilogauss by use of the temperature stable indium arsenide probe. Light in weight, completely portable and operating on internal batteries, the 874 is ideal for "in plant" or field use.

Complete with probe—$195.00

Write to DYNA-EMPIRE Inc

1075 Stewart Avenue, Garden City, N. Y.

CIRCLE 196 ON READER-SERVICE CARD

NEW

- Direct Reading In Degrees.
- Accuracy 0.05° or 1%.

PHASE METERS

Type 405 Series: 1 cps to 500 kc. Accuracy 0.25° relative, 1° absolute. No amplitude adjustment from 0.1v to 70v. Suitable for plotting phase curve.

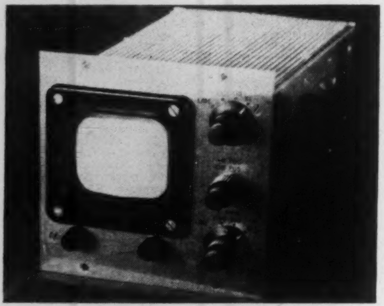
Type 202: 20 cps to 500 mc. Accuracy 0.02° or 2%. 1° full scale sensitivity. Phase range 0-1, 0-2, 0-4, 0-12, 0-120 and 0-180 degrees.

Type 205A1-A2: 100 kc to 15 mc. Accuracy 0.05° or 1%. Sensitivity 0.04v.

Type 205B1-B2-B3: 15 mc to 1500 mc. Accuracy 0.05° or 1%. Sensitivity down to 20 microvolts with receiver.

AD-YU
ELECTRONICS LAB, INC.
249 TERHUNE AVENUE
PASSAIC, NEW JERSEY

CIRCLE 197 ON READER-SERVICE CARD



"This Panel Mounted 3" Oscilloscope, Model 330PM, mounts in a cutout 5¾" wide by 4¾" high and extends 10⅝" beyond the front panel. The front panel dimensions are 6" wide by 6" high. The input impedance is 1.9 megohms and the vertical frequency response is linear from 20 cycles to 350 KC. The unit employs identical, vertical and horizontal amplifiers push-pull. The gain is approximately .15 volts RMS per inch. This oscilloscope is complete with low and high voltage power supplies."

BUILDING BLOCKS ELECTRONIC CO.
2506 Gerritsen Ave., Brooklyn 29, N. Y. TWining 1-0331

CIRCLE 199 ON READER-SERVICE CARD

M-H Heiland Div
Midwestern Instrs
Offner Electronics Inc
Philco Corp
Photron Instr Co
Sanborn Company
Stoelting Co C H
Techni-Rite Elx

OSCILLOGRAPHS Piezoelectric

Philco Corp
Techni-Rite Elx

OSCILLOGRAPHS, Recording, including Direct Writing

Allegany Instrument
American Optical Co
Applied Science Corp
Brush Instruments Div
Century Elx & Instrs
Consol Electrodynamics
Crump Instrument
Electro-Autosizing
Electrodynamic Instr
Electro-Medical Lab
Epic Inc
Fairbanks-Morse
GE Apparatus Sales Div
Geotechnical Corp
Gerber Scientific Inst
Gordon Enterprises
Hamilton Watch Co
Hathaway Instruments
Hughes Products
M-H Heiland Div
Massa Div
Midwestern Instrs
Moseley Co F L
Offner Electronics Inc
Philco Corp
Photron Instr Co
Sanborn Company
Schwarzer Co
Southwestern Indus Elx
Stoelting Co C H
Techni-Rite Elx
Technology Instr (Mass)
Texas Instruments Inc.

OSCILLOSCOPES

Abtronics Inc
Allegany Instrument
Allied Radio
American Electronic Labs
Ampex Data Products
Analab Instrument
Building Blocks Elx
Canadian Marconi
Carol Electronics
Central Scientific
Convair Instruments
Crosby-Teletronic Corp
DuMont Labs Allen B
Edgerton Germeshausen
EIco Electronic Instr
Electro Instruments
Electronic Instrument
Electronic Msmts Corp
Electronic Tube
Engis Equipment
Federal Mfg & Engrg
Feiler Engrg & Mfg
Gordon Enterprises
Heath Co
Hewlett-Packard
Hickok Electrical Instr
Hughes Industrial Sys
Hughes Products
ITI Electronics
ITT Industrial Products
Interlab Inc
Kauke and Co Inc
Kingston Industries
Lavoie Labs
Lumatron Electronics
Marconi Instruments
Millen Mfg Co
Model Engrg
Molded Insulation
North Atlantic Indus
Philco Corp
Precision Apparatus Co
Probescope Co
RCA Defense Electronics
Raycom Instr
Sanborn Company
Schueler & Co
Schwarzer Co
Scopes Company
Sierra Electronic Corp
Simpson Electric
Southwestern Indus Elx
Specialty Electronics
Tektronix Inc
Telectro Industries
Trad Electronics
Triplett Electl Instr
Universal Match
Waterman Products
Waters Mfg Inc

PERMEAMETERS, Magnetic

Instrument Systems Corp
M-H Rubicon Div
Philco Corp
Raycom Instr
Sensitive Research Instr
Sunshine Scientific

PHASE ANGLE INDICATORS

Acton Laboratories
Ad-Yu Electronics
Assembly Products Inc
Astrosystems Inc
Autonetics
Bergen Labs Inc
Bowmar Instrument
Control Electronics
Cubic Corp
Datalog Div
Daystrom/Weston
Dytronics Co
Eastern Specialty Co
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General Devices
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GE Apparatus Sales Div
Gertsch Products Inc
Industrial Test Equip
Kearfott Div
Link Div
Model Engrg
Muirhead Instrs Inc
North Atlantic Indus
Ohio Semiconductors
Orion Electronic Corp
Rohde & Schwarz
Sanborn Company
Sensitive Research Instr
Servo Corporation
Servomechanism Inc
Statham Instruments
Technology Instr (Mass)
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Theta Instrument
United Mineral & Chem
Vitro Electronics
Western Electronic Prods
Wiltron Co
Wintronics

PHASE CONTROLLERS

Acton Laboratories
Analab Instrument
Automatic Timing & Contls
Electric Regulator
Fairfield Engrg
General Devices
Hamilton Standard Div
Hoffman Electronics
Philco Corp
Power Controls Div
Rixon Electronics
System Analyzer
Technology Instr (Mass)
Varo Mfg Co
Wiltron Co

PHASE SEQUENCE INDICATORS

Ad-Yu Electronics
Associated Research
Astrosystems Inc
Automatic Timing & Contls
Biddle Co James G
Brunswick Instruments
Davenport Mfg
Daystrom/Weston
Dytronics Co
Eastern Specialty Co
Electric Regulator
General Devices
GE Apparatus Sales Div
Green Rectifier
Hartman Electrical Mfg
Industrial Test Equip
Knopp Inc
Master Specialties
Model Engrg
Opad Electric
Philco Corp
Sticht Co Herman
Sunshine Scientific
Technology Instr (Mass)
United Mfg Co
Wintronics

PHASE SHIFTERS

Acton Laboratories
Ad-Yu Electronics
Aeronaut & Instr Div
Amer Meas & Control
Arra Electronics
Astrosystems Inc
Bendix York Div
Bogart Mfg Corp
Chadwick-Helmuth
Control Electronics
Diamond Antenna
Diehl Mfg Co
Dorne and Margolin
Douglas Microwave Co
Dytronics Co
Electronic Controls Inc
Electronics International
Fairfield Engrg
Frequency Standards
General Microwave Corp
Gertsch Products Inc
Gombos Co, John
Goslin Electric
Hewlett-Packard
Industrial Control Co
Industrial Test Equip
Kane Engineering Labs
Kearfott Microwave Div
Knopp Inc
Litton Systems
Microphase Corp
Microwave Associates
Microwave Dev Lab
Motorola Military Elx
Multi-Amp Electronic
Nilsen Mfg Co
North Atlantic Indus
Norbatrol Electronics
Plug-In Instruments Inc
Power Controls Div
Radar Design Corp
Radar Measurements Corp
Rantec Corp
Reeves Instr Corp
Rixon Electronics
Somerset Radiation Lab
States Company
Technology Instr (Mass)
Turbo Machine Co
Theta Instrument
United Shoe Machinery
VecTrol Engrg
Westinghouse Electric
Weston Hydraulics Ltd
Wiltron Co
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Daystrom/Weston
Dice Co J W
Eastern Specialty Co
Philco Corp
Sun Electric Corp
Thermo Electric Co
Wintronics

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Aircraft/Elx Controls
Allegany Instrument
Beckman/Helipot Div
Borg Equipment Div
Bourns Inc
Carter Mfg
Central Scientific
Clarostat Mfg
Computer Instruments
Daystrom/Weston
Electric Regulator
Electromath Corp
Electro Scientific Ind
Fairchild Controls
Fedtro Inc
Fluke Mfg Co
Gamewell Co
General Controls
Gray Instrument
Howell Instrs
International Resistance
Julie Research Labs
Kintronic Div
Leeds & Northrup
Lewis Engrg Co
Lockheed Electronics
M-H Brown Instrs Div
M-H Rubicon Div
Mallory & Co P R
Micro-Lectric Div
Millitest Corp
Model Engrg
Muirhead Instr
New England Instr
Norden Division
Physics Research Labs
Precision Line Inc
Radio Frequency Labs
Rinco Inc
Sensitive Research Instr
Servo Systems Co
Servonic Instruments
Shallcross Mfg Co
Smith-Florence Inc
Specialties Inc
Spectrol Electronics
Subminiature Instr
Technique Associates
Thermo Electric
Ultronix Inc
Vogue Inst Corp

PHAZOR
PHASE METER

MODEL 200AB

PRICE $449.00

- 2° absolute accuracy
- Readings not affected by noise and harmonics
- Frequency range 15 CPS — 30KC
- Accuracy to .01 degree with simple circuit techniques
- High sensitivity on input & reference channels
- Can measure in-phase & quadrature voltage component

For further information contact your nearest representative or write for brochure

ITECO
INDUSTRIAL TEST EQUIPMENT CO.
55 E 11th ST · NEW YORK 3 · GR 3-4684

CIRCLE 198 ON READER-SERVICE CARD

SELF BALANCING POTENTIOMETRIC DC VOLTMETER

- 0.2% accuracy

Multi-Range: 11 selections
0-3 mv to 0-300 volts

- over 1000 megohms input impedance

14″ scale
Zener Reference

Universal Case Design providing a quick change from Case to Bench to Rack Enclosures.

$545 to $575

Literature immediately available upon request.

houston instrument corporation

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CIRCLE 200 ON READER-SERVICE CARD

Waltham Precision Instr
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Williamson Development
Winslow Electronics, Inc

POTENTIOMETERS, Self-balancing, Automatic Control, Indicating and/or Recording

Ace Electronics Assoc
Aircraft/Elx Controls
Allegany Instrument
American Electronics Inc
Atohm Electronics
B and K Instruments
Bailey Meter Co
Barber-Colman
Beckman/Helipot Div
Bourns Inc
Bristol Co
Centralab Div
Chicago Aerial
Computer Instruments
Control Data Corp
Daystrom/Weston
Electric Regulator
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Epic Inc
Ercona Corp
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Foxboro Company
Gamewell Co
GE Apparatus Sales Div
G E Specialty Control
General Controls
Giannini Controls Corp
Gilmore Industries
Gulton Industries
Handley Inc
Hays Corporation
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Howell Instrs
Industrial Instruments
Industrial Control Co
International Resistance
Jordan Controls
Keinath Instr Co
Leeds & Northrup
Lewis Engrg Co
Liquidometer
Markite Corp
Micro-Lectric Div
M-H Brown Instrs Div
M-H Industrial Controls
Model Engrg
Moseley Co F L
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Norden Division
North Atlantic Indus
Newport Scientific Co
Perkin-Elmer Corp
Sensitive Research Instr
Servo Corporation
Servonic Instruments
Shallcross Mfg Co
Shaw Instr Corp
Spectrol Electronics
Subminiature Instr
Systron-Donner
Texas Instruments Inc
Thermo Electric
Triplett Electl Instr
United Control Systems
Vernistat Div
Vogue Inst Corp
Waltham Precision Instr
West Instrument
Westronics Inc
Wheelco Indus Instrs

POWER FACTOR INSTRUMENTS

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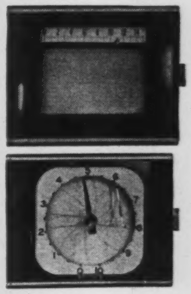
Daystrom/Weston
Epic Inc
Esterline-Angus
Federal Pacific
Fluke Mfg Co
GE Apparatus Sales Div
General Radio
Hathaway Instruments
Indikon Inc
Industrial Test Equip
Martindale Electric
Natl Electronics (Wyo)
North Atlantic Indus
Philco Corp
Physics Research Labs
Sensitive Research Inst
Voltron Products
WE-Instr & Control Sys
Western Electronic Prods
Westinghouse Electric

POWER SUPPLIES, AC, DC, High Voltage, Regulated

ACDC Electronics Inc
ACF Electronics
Abacus Inc
Advanced Research
Aerovox Corp
Airborne Accessories
Airesearch Mfg Co
Air-O-Tronics Engrg
Airpax Electronics
Alfred Electronics
Allegany Instrument
Allied Radio
Allis-Chalmers
Amelco Inc
Amerac Inc

More Power Supplies on following pages

Potentiometers, Electronic, Round and Strip Chart



Bristol Electronic Dynamaster (R) Potentiometers will measure, record, or automatically control any variable that can be translated into an electrical quantity (d-c current, d-c voltage, capacitance, or resistance).

Offered in indicating, recording (up to 24 records on same chart), and controlling. All types of control: air operated, electric, electronic program control.

Write for Bulletin P1245A

BRISTOL COMPANY

112 Bristol Rd., Waterbury 20, Conn.

CIRCLE 201 ON READER-SERVICE CARD

ELECTRONICALLY REGULATED D. C. CONSTANT VOLTAGE POWER SUPPLIES

The output voltage is continuously variable from 200 to 325 volts D.C. for load currents of 0 to 100 M.A. with an input voltage of 105 to 125 volts 60 cycle. Regulation is better than 1%. An isolated A.C. voltage of 6.3 volts at 3 amperes is available at the output terminal connections.

MODEL 3 ILLUSTRATED

MODEL 3 CAB. MTG., VOLTMETER	$69.50
MODEL 1 RELAY RACK MTG.	$52.50
MODEL 2 SUB-CHASSIS MTG.	$49.50
DUAL RACK MOUNT FOR MODEL 2 Mounts Two Model 2 Units in 8¾″	$9.00

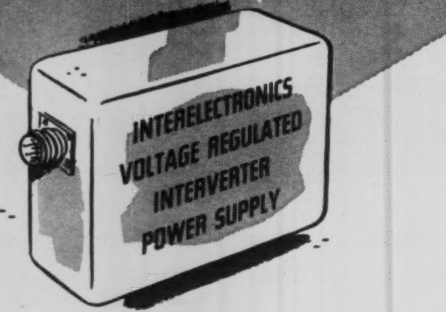
ASSOCIATED SPECIALTIES CO.
1751 MAIN STREET
OREFIELD, PENNSYLVANIA

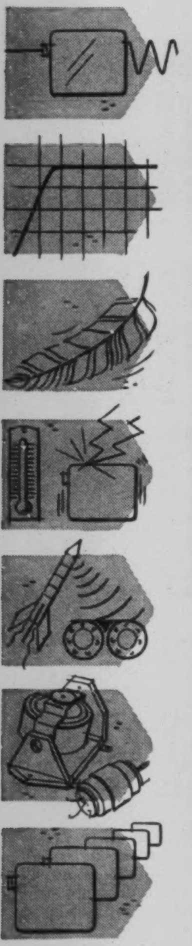
CIRCLE 202 ON READER-SERVICE CARD

PROVEN RELIABILITY—

SOLID-STATE POWER INVERTERS,

over 260,000 logged operational hours—
voltage-regulated, frequency-controlled,
for missile, telemeter, ground support,
135°C all-silicon units available now—





Interelectronics all-silicon thyratron-like gating elements and cubic-grain toroidal magnetic components convert DC to any desired number of AC or DC outputs from 1 to 10,000 watts.

Ultra-reliable in operation (over 260,000 logged hours), no moving parts, unharmed by shorting output or reversing input polarity. High conversion efficiency (to 92%, including voltage regulation by Interelectronics patented reflex high-efficiency magnetic amplifier circuitry.)

Light weight (to 6 watts/oz.), compact (to 8 watts/cu. in.), low ripple (to 0.01 mv. p-p), excellent voltage regulation (to 0.1%), precise frequency control (to 0.2% with Interelectronics extreme environment magnetostrictive standards or to 0.0001% with fork or piezoelectric standards.)

Complies with MIL specs. for shock (100G 11 mlsc.), acceleration (100G 15 min.), vibration (100G 5 to 5,000 cps.), temperature (to 150 degrees C), RF noise (I-26600).

AC single and polyphase units supply sine waveform output (to 2% harmonics), will deliver up to ten times rated line current into a short circuit or actuate MIL type magnetic circuit breakers or fuses, will start gyros and motors with starting current surges up to ten times normal operating line current.

Now in use in major missiles, powering telemeter transmitters, radar beacons, electronic equipment. Single and polyphase units now power airborne and marine missile gyros, synchros, servos, magnetic amplifiers.

Interelectronics—first and most experienced in the solid-state power supply field produces its own all-silicon solid-state gating elements, all high flux density magnetic components, high temperature ultra-reliable film capacitors and components, has complete facilities and know how—has designed and delivered more working KVA than any other firm!

For complete engineering data, write Interelectronics today, or call LUdlow 4-6200 in New York.

INTERELECTRONICS CORP.

2432 Gr. Concourse, N. Y. 58, N. Y.

CIRCLE 203 ON READER-SERVICE CARD

INDUSTRIAL POWER BY DC POWER SPECIALISTS

RECTIFIER SPECIALISTS

SPECIALIZATION is a big word at RAPID ELECTRIC

RAPID makes **only** dc power supplies. This specialization enables you to buy from one source, from a manufacturer who designs and makes its own major components. Choose from a standard line of stock units from 5 Amperes 6 volts to 10,000 Amperes 50 Volts. Custom design is our specialty for higher voltages and KW ratings up to 1000. Our engineering staff and four manufacturing plants complete with the latest facilities are at your disposal. Call today TA 8-2200 or send in your inquiry. Unusual applications are welcome. Catalog and descriptive brochures available upon request.

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Applied Radiation Corp
Applied Research Labs
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Arnoux Corp
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Atlas Engrg Co
Automation Dev Corp
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Avtron Manufacturing
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Burton Mfg Co
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Deltek Corp
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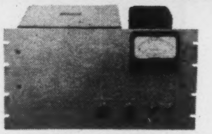
SPELLMAN

HIGH VOLTAGE POWER SUPPLIES



MODEL RG-30

Continuously Variable 15-30 KV Regulated DC Power Supply with Regulated Focus Voltage Tap

A continuous duty DC supply with highly filtered outputs and regulations better than 0.5% at 1 ma.—no load to full load. A variable focus tap 4-6 KV for use with 5WP11, 5TP4 and flying spot tubes. Dimensions: 19" wide x 10½" high x 13" deep.

With HV meter $375 Net Less meter $325 Net

MODEL RG-40 is a 20-40 KV unit with same specifications as RG-30 except .7 ma. at 40 KV. With meter $375 Net Less meter $325 Net

MODEL 4575 5 KV-1ma. DC POWER SUPPLY

For an output voltage of 5 KV DC at 1 milliampere, the low voltage input requirement is 250 V at 50 milliamperes. By varying the DC input the output voltage can be varied from approx. 1 KV to 7½ KV. Dimensions: 5⅝" high x 5" deep x 4¼" wide. In completely enclosed metal housing.

$32.50 Net

MODEL 4575-2. Same as above with 2 ma. output at 5 KV. $42.50 Net

MODEL 4575PN—Reversible polarity. High voltage secondary floating or can be grounded. 1 ma. at 5 KV. $42.50 Net

MODEL 4575-2PN—Reversible polarity. 2 ma. at 5 KV. $52.50 Net

SPELLMAN HIGH VOLTAGE COMPANY

1930 Adee Ave., Bronx 69, N. Y.
KIngsbridge 7—0306

CIRCLE 205 ON READER-SERVICE CARD

RECOGNIZED RELIABILITY

SET CURRENT
AC
MA V
HI: 100-500MA
LO: 25-100 MA
1-40 VOLTS
FINE ADJ.
LO
CURRENT
VOLTAGE
3/4A
1/2A
TRANSISTORIZED POWER SUPPLY
MODEL 4005
1-40 VDC 0-500MA
DC-
DC+
AMBITROL
V-I

POWER DESIGNS

Semiconductorized Power Supplies utilize the unique properties of semiconductor devices to create new circuit concepts achieving performance, efficiency and reliability hitherto unattainable.

ROBOTEC
HIGH SPEED PROTECTION AGAINST OVERLOAD and SHORT CIRCUITS

HEATRAN
TRANSISTOR DISSIPATION CONTROL

VOLTAC
TRANSIENT ABSORPTION CIRCUITRY

S·P·D·J
SILICON TRANSISTOR INPUT HIGH STABILITY AMPLIFIER

CONSTANT VOLTAGE CURRENT

- +

from the SAME TERMINALS *with* AUTOMATIC TRANSFER TO EITHER MODE

The Power Designs Models 4005 and 2020 Power Supplies add a new dimension to the application of d-c sources for laboratory instrumentation. Truly universal, these instruments may be operated as a *constant voltage* source, a *constant current* source, a *constant voltage* source with *adjustable current limiting* or a *constant current* source with *adjustable voltage limiting.*

The Models 4005 and 2020 employ solid state devices exclusively in a proprietary circuit trademarked AMBITROL.
*TM

AMBITROL* is a dual regulator system permitting continuous control of voltage or current with automatic electronic cross-over to either mode of operation.

These supplies also feature remote voltage programming, remote current programming, dual concentric controls for coarse and fine adjustment of voltage or current and the HEATRAN® circuit for electronic control of power transistor dissipation.

MODEL 4005

CONSTANT VOLTAGE

Range: 0-40 vdc, 0-0.5 amperes, cont. adjust.

Regulation: .05% or 10 millivolts max. for line or load variations.

Ripple: .0005% or 250 microvolts maximum.

Response Time: Less than 50 microseconds.

Source Z: 0.1 ohms to 20 kc, 0.7 ohms to 1 mc.

CONSTANT CURRENT

Range: 25 to 500 milliamperes, cont. adjust.

Regulation: .02% or 100 microamperes max., for line or load variations.

Voltage compliance: Output current constant to full rated output voltage of 40 volts.

Ripple Content: .005% or 20 microamperes max.

Source Z: 400,000 ohms approximately.

MODEL 2020

CONSTANT VOLTAGE

Range: 0-20 vdc, 0-2 amperes, cont. adjust.

Regulation: .05% or 10 millivolts max. for line or load variations.

Ripple: .0005% or 250 microvolts maximum.

Response Time: Less than 50 microseconds.

Source Z: 0.1 ohms to 20 kc, 0.7 ohms to 1 mc.

CONSTANT CURRENT

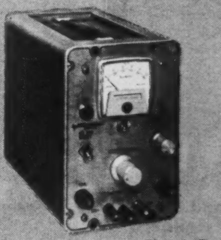
Range: 25 ma to 2.0 amp., cont. adjust.

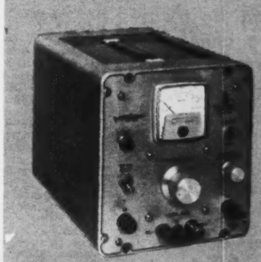
Regulation: .05% or 250 microamperes max., for line or load variations.

Voltage compliance: Output current constant to full rated output voltage of 20 volts.

Ripple Content: .01% or 25 microamperes max.

Source Z: 100,000 ohms approximately.


Size A, B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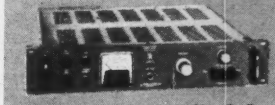

Size D, E

*MODEL 1515	1-15VDC•0-1.5A	(A)	$159.50
MODEL 1515A	1-15VDC•0-1.5A	(A)	$174.50
MODEL 3206	1-32VDC•0-600MA	(A)	$174.50
MODEL 4005	0-40VDC•0-500MA	(B)	$143.50
MODEL 2020	0-20VDC•0-2.0A	(B)	$197.50
MODEL 5015	1-50VDC•0-1.5A	(B)	$229.50
MODEL 5015A	0-50VDC•0-1.5A	(B)	$234.50
MODEL 105TA	1-100VDC•0-500MA	(B)	$239.50
MODEL 1010T	1-100VDC•0-1.0A	(C)	$339.50
MODEL 2050	1-20VDC•0-5.0A	(C)	$289.50
MODEL 3240	1-32VDC•0-4.0A	(C)	$349.50
MODEL 1210	1-12VDC•0-10.0A	(C)	$349.50
MODEL 5010P	1-50VDC•0-1.0A	(D)	$299.50
MODEL 1510TA	145-155VDC•0-1.0A	(E)	$375.00
MODEL 1510TC	50-150VDC•0-1A	(E)	$425.00

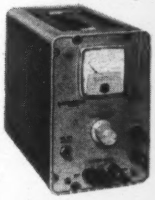
Dual Volt/ammeter on all models. Voltmeter only on Model 1515.

Rack Panel Adapters for Sizes A and B: Single Model RRA-15 $15.50, Dual Model RRB-15 $15.50. Triple Model RRC-15 $19.50 Type C: Single Model RRA-20 $17.50, Dual Model RRB-20 $17.50, Dual (one size A or B, one size C) RRB-25 $17.50. **F.O.B. Westbury, N. Y. Terms, ½% 10. Net 30 days. Prices subject to change without notice.

SIZES:
(A) 5¾'' W x 8⅝'' H x 10'' D
(B) 5¾'' W x 8⅝'' H x 11¾'' D
(C) 7¾'' W x 8⅝'' H x 13⅛'' D
(D) 19'' W x 3½'' H x 14¾'' D
(E) 19'' W x 5¼'' H x 14¾'' D

INPUT: 105-125 V AC 55-440 Cy
REGULATION: .05%
RIPPLE: Models 1515, 1515A, 4005, 2020: 250 Microvolts
Models 5015, 5015A, 3206, 2050: 500 Microvolts
All Others—1.0 Millivolt
Internal Imp: Model 2050, 1210, 1010T, 3240; .005 ohms
All Others—.01 ohms

PRAXICON



The PI-9000 Series Power Supplies of which Model PI-9028 is illustrated, utilize an advanced technique for obtaining regulated DC Power at extremely high efficiency by means of switching circuitry which takes energy from the AC source in discrete pulses. These pulses are integrated by the regulator system to supply the load demand. Regulation is achieved by electronic control of pulse amplitude, pulse width, and pulse repetition rate.

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  BS-1 replaces dry cell only
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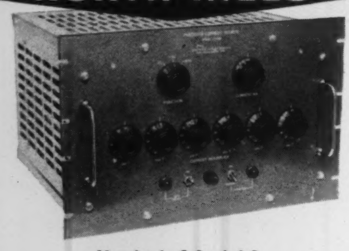

Model CS-140

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- **Precision Current Source**
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For testing and measurement of gyro torquers, zener, reference diodes, magnetic components, other current sensitive devices.

- **Current Range is 0.1 μa to 150 ma**
- **Regulation 0.002%**
- **Resolution 1 part per million**

In use by leading companies for gyro torquer supply, component reliability testing, calibration, reference zener testing.

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T32V12ACC	0-32VDC ● 12 Amps/0.5% Ripple VDC	169
T28V12A2CC	0-28VDC ● 12 Amps/.01% Rip/0.3Mv	198
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T28V24A2CC	0-28VDC ● 24 Amps/0.5% Rip 0 3Mv	297
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T130V5ACC	0-130VDC ● 5 Amps/1% Ripple VDC	289
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1120VAC 1000VDC	1400VAC 1250VDC	2500VAC 2500VDC
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2	2.30	3.00	5.25	6.25	7.60	14.00	21.90	$2.90
4	3.65	7.35	11.40	16.00	19.90	28.50	47.60	3.60
6	4.40	7.90	12.75	18.75	32.60	36.00	63.45	4.70
12	8.00	15.75	21.95	30.95	45.00	52.50	103.60	7.60
20	12.90	25.30	37.45	49.90	78.75	90.00	169.00	9.45
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† Secds. Series at Amps Shown: Parallel ● 2X Amps

TR4000R	2X16V at 1 amp *ea. Sec'd. Wndg.*	3.75

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CR6004	12 Amp, .01 Henrys 1 Ohm	12.75
CR6005	24 Amp, .004 Henrys .025 Ohms	14.90
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TYPE	VRMS/PIV	AMPS	PRICE
ST866	5000/10400	0.3	$20.00
ST816	5000/7000	0.3	$16.00
ST5R4	1900/2800	0.5	$15.00
ST5U4	1120/1600	0.6	$ 8.00

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Mallory & Co P R
Massa Div
Maxson Electronics Corp
Melcor Electronics Corp
Microphase Corp
Midwestern Instrs
Millen Mfg Co
Millivac Instr Inc
Milro Controls
Model Engrg
Motorola Military Elx
NARDA Corp
National Standard Elx
Nems-Clarke Co
Nuclear-Chicago
Offner Electronics
Oilgear Co
Orion Electronic Corp
P and H Electronics
Permoflux Products
Philbrick Researches
Philco Corp
Photron Instr Co
Physical Sciences Corp
Pickard & Burns
Plug-In Instruments Inc
Power Controls Div
Quan-Tech Labs
R C A Defense Electronic
R S Electronics Corp
Radiation Electronics
Ramapo Instrument
Resdel Engineering
Rixon Electronics
Sanborn Company
Scott Inc H H
Servo Corporation
Smith-Florence Inc
Space Electronics
Spectra Electronics
Statham Instruments
Taber Instrument
Tech Measurement Corp
Tektronix Inc
Trott Electronics
United Shoe Machinery
Vector Mfg Co
VecTrol Engrg
Victoreen Instrument
Virginia Electronics
WE-Director Systems
Waber Electronics
Waterman Products
Watkins-Johnson Co
Weinschel Engrg
Wickes Engrg & Constr
Wintronics

PROBES, High Voltage, High Frequency

Allied Radio
Ampco Mfg Co
Baird-Atomic
Bendix Scintilla Div
Brach Mfg
Demornay Bonardi
Dittmore-Freimuth
Dorne and Margolin
DuMont Labs Allen B
Elco Electronic Instr
Electronic Instrument
FXR Division
General Microwave Corp
Giannini Controls Corp
Heath Co
Hewlett-Packard
Hickok Electrical Instr
International Resistance
Jennings Radio Mfg
Kay Electric
Keithley Instruments Inc
Laboratory for Electronics
Lavoie Labs
Lumatron Electronics
Microdot Inc
Millivac Instr Inc
Model Engrg
PRD Electronics
Pacific Electro Magnetic
Physics Research Labs
Precision Apparatus Co
Projects Unlimited
Radar Design Corp
Research Council Inc
Rowan Controller Co
Sensitive Research Inst
Simpson Electric
Slaughter Co
Tektronix Inc
Telerad Division
Triplett Electl Instr
United Shoe Machinery
WacLine Inc

PROJECTORS, Oscillogram

Gordon Enterprises

Q METERS

Canadian Marconi
Freed Transformer
Heath Co
Industrial Test Equip
Kay Electric
Marconi Instruments
North Hills Electric
Rohde & Schwarz
Seco Electronics

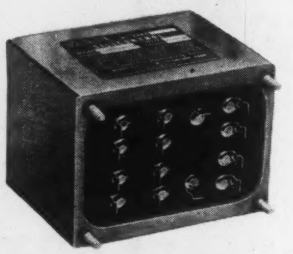
RATIO BOXES

ACDC Electronics Inc
Astrosystems Inc
British Industries
Bytrex Corp
Coast Coil
Collins Corp G L
Daven Co
Dmeter Mfg
Dynex Inc
Electro Instruments
Electro-Measurements
Electro Metric Co
Electronic Applications
General Radio
General Resistance Inc
Gertsch Products Inc
Gray Instrument
Holt Instrument Labs
Industrial Instruments
Keystone Mfg Co
Leeds & Northrup
M-H Rubicon Div
Muirhead Instrs Inc
North Atlantic Indus
Precision Apparatus Co
Physical Sciences Corp
Physics Research Labs
Planet Instrument
Rinco Inc
Ultronix Inc
Winslow Electronics Inc

RELAY TESTERS

Abrams Instrument
Automation Controls Corp
Barnes Development Co
Calif Technical Indus
Corbett Science Labs
Couch Ordinance Inc
Davenport Mfg
Di-Tran Corp
Dit-Mco Inc
Dymec
Eastern Specialty Co
Electro Instruments
Electronic Engrg Co Calif
Electronic Specialty Co
Fleetwood Labs
GE Specialty Control
Gulton Industries
Hart Mfg Co
Hi-Spec Electronics
Kahn & Co
Measurements Research
Multi-Amp Electronic
Naybor Labs E V
North Electric
Opad Electric Co
Optimized Devices
Pearce-Simpson Inc
Philco Corp
Projects Unlimited
RCA Systems Support
Rodale Electronics
Sel-Rex Corp
Sigma Instruments
Slaughter Co
States Company
Sunshine Scientific
Texas Instruments Inc
United Mfg Co
Universal Relay

SILICON RECTIFIER GATE CONTROLS



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Simple failsafe complete control for the new SCR, revolutionizing AC or DC proportional power control. Milliwatt control signal regulates kilowatts of DC or AC power, from AC source.

60 and 400 CYCLE STYLES
AVAILABLE FROM STOCK.

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Manufacturing engineers of regulated and unregulated silicon and selenium rectifiers.

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Allied Radio
Arenberg Ultrasonic
Atohm Electronics
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British Industries
Bytrex Corp
Central Scientific
Clarostat Mfg
Consolidated Resistance
Daven Co
Dmeter Mfg
EIco Electronic Instr
Electro-Measurements
Electro Metric Co
Electronic Instrument
Epic Inc
General Radio
General Resistance Inc
Gray Instrument
Hathaway Instruments
Heath Co
Industrial Instruments
Julie Research Labs
Kelvin Electric
Land-Air Inc
Leeds & Northrup
M-H Rubicon Div
Mepco Inc
Muirhead Instrs Inc
Ohmite Mfg Co
Optimized Devices
Physics Research Labs
Pimex Inc
Precision Apparatus Co
Precision Line Inc
RCA Systems Support
Rho Engineering
Rinco Inc
Rohde & Schwarz
Sensitive Research Instr
Shallcross Mfg Co
Ultronix Inc
Voltron Products
Welch Mfg Co W M
Winslow Electronics Inc

RESISTANCE COMPARATORS

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Borden Engrg Co
Bytrex Corp
Calif Technical Indus
Communication Meas Lab
Di-Tran Corp
Dmeter Mfg
Electro Instruments
General Radio
General Resistance Inc
Gray Instrument
Haydon Co A W (Calif)
Industrial Instruments
Industrial Test Equip
International Resistance
Julie Research Labs
Lavoie Labs
M-H Rubicon Div
Measurements Research
Microloc Corp
Millitest Corp
Non-Linear Systems
North Hills Electronics
Optimized Devices
Philco Corp
RCA Systems Support
RDF Corp
Research Indnustrial Lab
Robotomics Inc
Rodale Electronics
Ruge Associates
Sensitive Research Inst
Slaughter Co Inc
United Mineral & Chem
Western Electronic Prods

RESISTANCE INDICATORS, Ground, Insulation, Megohm, Milliohm, Ohm

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Associated Research
Barber-Colman
Barnes Development Co
Biddle Co James G
Borden Engrg Co
British Industries
Bytrex Corp
Cubic Corp
Custom Scientific Instrs
Davenport Mfg
Datran Electronics
Daystrom/Weston
Dice Co J W
Dit-Mco Inc
Electro Instruments
Electrospace Corp
Electronic Applications
Electronic Instrument
Engelhard Industries
Federal Pacific
Freed Transformer
GE Apparatus Sales Div
General Radio
General Resistance Inc
Gray Instrument
Greibach Instrument
Gulton Industries
Halex Inc
Heath Co
Hewlett-Packard
Hewson Co Inc
Hexem Inc
Industrial Instruments
Keithley Instruments Inc
Lavoie Labs
Leeds & Northrup
Martindale Electric
Meters Inc
Millitest Corp
Millivac Instr Inc
Multi-Amp Electronic
Natl Electronics (Wyo)
Opad Electric Co
Pearce-Simpson Inc
Philco Corp
Physics Research Labs
RCA Systems Support
Research Industrial Lab
Rodale Electronics
Rohde & Schwarz
Shallcross Mfg Co
Simpson Electric
Slaughter Co Inc
Sticht Co Herman
Sunshine Scientific
Sweeney Mfg Co
Triplett Electl Instr
United Mineral & Chem
WacLine Inc
Westronics Inc
Winslow Electronics Inc
Yokogawa Electric Works

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Dmeter Mfg
Electro-Measurements
Electro Metric Co
Electro Scientific Ind
General Radio
General Resistance Inc
Gertsch Products Inc
Gray Instrument
Industrial Instruments
Julie Research Labs
Kelvin Electric
Leeds & Northrup
Mepco Inc
M-H Rubicon Div
Millitest Corp
Muirhead Instrs Inc
Physics Research Labs
Physical Sciences Corp
Precision Apparatus Co
Rinco Inc
Sensitive Research Instr
Shallcross Mfg Co
Tesla Research
Ultronix Inc
Winslow Electronics Inc

RESISTORS, Decade

Aerovox Corp
Atohm Electronics
British Industries
Clarostat Mfg
Corbett Science Labs
Corning Glass
Daven Co
Dmeter Mfg
EIco Electronic Instr
Electro Instruments
Electro Scientific Ind
Fluke Mfg Co
General Radio
General Resistance Inc
Gray Instrument
Heath Co
Industrial Instruments
International Resistance
Julie Research Labs
Leeds & Northrup
M-H Rubicon Div
Mepco Inc
Muirhead Instrs Inc
Pacific Resistor
Physics Research Labs
Precision Apparatus Co
Precision Line Inc
Rinco Inc
Sensitive Research Instr
Shallcross Mfg Co
Tech-Ohm Resistor
Telectro Industries
Ultronix Inc
Victoreen Instrument
Welch Mfg Co W M
Winslow Electronics Inc

When Using This Guide

look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

POWER SUPPLIES

Opad
IMMEDIATE DELIVERY
NOW GUARANTEED FOR THREE YEARS
A
B
C
D
E
F
G
H

0-32 V.D.C. 100 M.V. Ripple

Input: V.A.C. 60 Cycles, Single Phase

Amps.	Model	Style	H	W	D	Fig.
5	KM75	Rack	8¾"	19"	9½"	F
	KM75B	Bench	9"	17"	9"	G
10	KM81	Rack	8¾"	19"	9½"	F
	KM81B	Bench	9"	17"	9"	G
20	KM87	Rack	8¾"	19"	9½"	F
	KM87B	Bench	10½"	22"	12"	H
40	KM93	Rack	12¼"	19"	13"	E
	KM93B	Bench	14"	22"	15"	A

FEATURES

- Vacuum Varnish Impregnated Magnetic Components.
- 4½" Rectangular 2% Accuracy, D.C. Panel Meters (3½" on small units).
- Controls include power switch, line and load fuses, pilot light, voltage control knob, output binding posts.
- Load Regulation: 1/10 Load 35 volts
  Full load 32 Volts
- Panel Type Carrying Handles.
- Convection Cooled Continuous Duty Ratings.

Bulletin No. 102A

0-125 V.D.C. 1% Ripple

Input: 117 V.A.C. 60 Cycles, Single Phase

Amps.	Model	Style	H	W	D	Fig.
2.5	RS10	Rack	8¾"	19"	9½"	F
	RS10B	Bench	10½"	22"	12"	H
5	RS20	Rack	10½"	19"	13"	F
	RS20B	Bench	12¼"	22"	15"	H
10	RS30	Rack	12¼"	19"	13"	E
	RS30B	Bench	14"	22"	15"	A
20	RS40	Rack	17½"	19"	13"	—
	RS40B	Bench	19¼"	19"	15"	D

FEATURES

- Vacuum Varnish Impregnated Magnetic Components.
- Non-Aging Silicon Rectifiers.
- 4½" Rectangular 2% Accuracy D.C. Panel Meters (3½" on small units).
- Controls include Power Switch, Line and Load Fuses, Pilot Light, Voltage Control Knob and Output Binding Posts.
- Load Regulation: 1/10 Load 130 Volts.
  Full Load 125 Volts.
- Both D.C. Terminals above ground and isolated from A.C. Line.
- Panel Type Carrying Handles.
- Convection Cooled Continuous Duty Ratings.

Bulletin No. 204A

4-32 V.D.C. 5 M.V. Ripple

Input: 105-125 V.A.C. 60 Cycles, Single Phase

Amps.	Model	H	W	D	Fig.
1.5	TR10	3½"	19"	9½"	B
4	TR20	3½"	19"	9½"	B
10	TR30	8¾"	19"	14"	C
15	TR40	8¾"	19"	14"	C

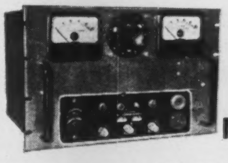
FEATURES

Transistorized.

- Regulation ±½% line and load.
- Remote Sensing.
- Zener Diode Reference.
- Short Circuit Protection.
- Controls include power switch, fuses, pilot light, main voltage control and vernier, and output binding posts.
- 2% Accuracy Panel Meters.
- Vacuum Varnish Impregnated Magnetic Components.

Bulletin No. 105

NEW! 0-32 V.D.C. 100 Amps.



1% Ripple

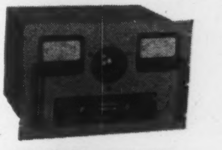
Input: 208 V.A.C., 60 Cycles, 3 Phase

Model KM100

FEATURES

- Only 12¼" H x 19" W x 17" D.
- Fully self-protecting circuit.
- Magnetic contactor starting.
- Adjustable D.C. overcurrent control.
- Overload indicator and reset button.
- 4½" Rect., 2% Acc. Meters.
- Silicon Type Rectifiers.
- Regulation: 1/10 Load 35 Volts.
  Full Load 32 Volts.

Bulletin No. 104



AIRCRAFT BATTERY SUBSTITUTE

Specifically designed to operate rotating equipment

OUTPUT: 0-30 V.D.C., 20 Amperes.
RIPPLE: Less than ½%.
INPUT: 115 V.A.C., 60 C.P.S. 1 ɸ.
REGULATION: 1/10 Load 35 Volts
Full Load 30 Volts

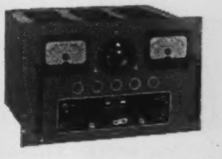
FEATURES: Ammeter overcurrent protection circuit prevents needle 'slam' when starting inverters & motors.

MODEL KM88. . . . . Rack Mount
MODEL KM88D. . . . . Rack Mount with Dust Cover
MODEL KM88B. . . . . Bench Cabinet

Bulletin No. 100B

NON-DESTRUCTIVE INSULATION TESTER

Voltage Range:
0-5 KVAC RMS Continuously Adjustable
Controls:
Power Switch, Test Voltage Adjust., H.V. Circuit Breaker Trip Adj. Calibrated 10ua to 3000ua. Guard Circuit "ON-OFF", Leakage Indicator Lamp Leakage Reset and Pilot Lamp. (Internal Audible Alarm)
Input:
115 VAC 60 cycles, single phase
Size/Wt:
7½" W x 3⅛" D x 8½" H — 8½ lbs.
MODEL HV 53 Bulletin 1400



DUAL RANGE POWER SUPPLY

OUTPUT: 0-32/64 V.D.C., 40/20 Amps.
RIPPLE: 0.3% R.M.S.
INPUT: 115 V.A.C., 60 C.P.S. 1ɸ.

FEATURES: Thermal overload protection, indicating line and load fuses, overload warning light, dual range voltmeter.

MODEL KM95. . . . Rack Mount
MODEL KM95D . . Rack Mount with Dust Cover
MODEL KM95B . . Bench Cabinet

Bulletin No. 103

OPAD ELECTRIC COMPANY
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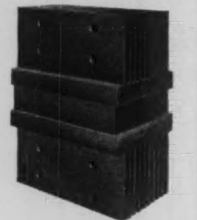
Telephone: WOrth 6-0380

CIRCLE 216 ON READER-SERVICE CARD

Fast Delivery of

D. C. AMMETER

SHUNTS



Standard D. C. ammeter shunts up to 20,000 amperes . . . 50, 75 and 100 millivolt. For use with any type of D. C. ammeter. Immediate delivery on most models up to 10,000 amperes.

Special shunts custom made quickly to fit your individual requirements as to size, shape, current and millivolt ratings. These usually can be shipped in five working days.

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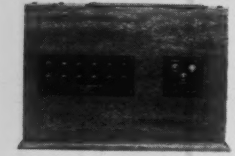
CIRCLE 217 ON READER-SERVICE CARD

EPPLEY PRECISION VOLTAGE STANDARD AND ASSOCIATED EQUIPMENT



THE EPPLEY PRECISION VOLTAGE STANDARD

Consisting of six Eppley saturated standard cells, mounted in a Constant Temperature Air Bath for laboratories desiring to maintain a primary reference standard eligible for certification by the National Bureau of Standards. This combination provides an extremely reliable and accurate reference for use in calibrating unsaturated standard cells in accordance with specifications requiring "traceability" to NBS standards.

Send for Bulletin #1 (Standard Cells) and #12 (Constant Temperature Box).

THE EPPLEY STANDARD CELL POTENTIOMETER

A precision potentiometer designed especially for the rapid and accurate measurement of standard cell voltages. For use where routine calibrations must be made in quantity without sacrifice of accuracy.

Send for Bulletin No. 7.

THE EPPLEY STANDARD CELL COMPARATOR

Provides a means of comparing accurately, to tenths of microvolts, the electromotive forces of two standard cells, by a measurement of the difference between the two forces. Designed primarily for the intercomparison of saturated, primary reference standards.

Send for Bulletin No. 11.

46-1

EPLAB

The Eppley Laboratory, Inc.
3 Sheffield Avenue
Newport, R. I., U. S. A.

CIRCLE 218 ON READER-SERVICE CARD

SHUNTS, Electric

Beede Electrical Instr
British Industries
Burton-Rogers
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Empro Mfg Co
Esterline-Angus
FXR Div
Federal Pacific
GE Apparatus Sales Div
Gray Instrument
Holt Instrument Labs
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Janco Corp
Leeds & Northrup
M-H Rubicon Div
Meters Inc
Narda Corp
Opad Electric Co
Parker Electrical Instr
Physics Research Labs
Ram Meter Inc
Sangamo Electric Co
Sensitive Research Inst
Shallcross Mfg Co
Simpson Electric
Sterling Instrument Div
Sun Electric Corp
Triplett Electl Instr
WacLine Inc
WE-Instr & Control Sys
Waldom Electronics
Welch Mfg Co W M
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SOUND ANALYZERS, including Noise

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B and K Instruments
Bearing Inspection Inc
Carad Corp
Chesapeake Instr
Convair Intsruments
Donner Scientific
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General Radio
Gulton-Ortholog
Heath Co
Hickok Electrical Instr
Kay Electric
Korfund Co
Mine Safety Appliances
Muirhead Instrs Inc
Philco Corp
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Quan-Tech Labs
Rixon Electronics
Rohde & Schwarz
Rowan Controller Co
Scientific-Atlanta
Scott Inc H H
Sierra Electronic Corp
Spectrum Instruments
Taper Micrometer Corp
Technical Products Co

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Altec Lansing Corp
Automatic Timing & Contls
B and K Instruments
Bearing Inspection Inc
Convair Instruments
Daystrom/Weston
Electronic Applications
Erwood Inc
General Radio
Gulton Industries
Hickok Electrical Instr
Kay Electric
Korfund Co
Mine Saefty Appliances
Philco Corp
Photocon Research
Probescope Co
Quan-Tech Labs
Sanborn Company
Scott Inc H H
Simpson Electric
Sterling Precision
Stromberg-Carlson Co
Taper Micrometer Corp
Technical Products Co
Tektronix Inc
Waldom Electronics

SOUND LEVEL INDICATORS, including db Meters

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Automatic Timing & Contls
B and K Instruments
Bearing Inspection Inc
Beckman/Helipot Div
Beede Electrical Instr
Burton-Rogers
Chesapeake Instr
Conn Corp C G
Davenport Mfg
Daystrom/Weston
DeJur-Amsco Corp
Dittmore-Freimuth
Electronic Applications
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Gulton Industries
Heath Co
Hickok Electrical Instr
Houston Instrument
Interlab Inc
International Instrs
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Mine Safety Appliances
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Pace Electrical Instrs
Phaostron Instr & Elx
Philco Corp
Precision Apparatus Co
Probescope Co
Robins Industries
Rohde & Schwarz
Rowan Controller Co
Sanborn Company
Scott Inc H H
Simpson Electric
Sterling Precision
Sun Electric Corp
Taper Micrometer Corp
Technical Products Co
Techni-Rite Electronics
Triplett Electl Instr
WacLine Inc
Waldom Electronics
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SPECTRUM ANALYZERS, AF

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Applied Science Corp
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B and K Instruments
Beckman & Whitley
Beva Laboratory
Canadian Marconi
Central Scientific
Convair Instruments
Contronics
Decker Corp
Dytronics Co
Electro-Mechanical Res
Engis Equipment
FXR Div
Flow Corporation
General Radio
Gulton Industries
Gulton-Ortholog
ITT Federal Labs
Kay Electric
Land-Air Inc
Lavoie Labs
Ling Electronics
MB Electronics
Model Engrg
Muirhead Instrs
Nuclear-Chicago
Philco Corp
Probescope Co
Quan-Tech Labs
Radiation Instr Dev Lab
Raytheon/Comm Apparatus
Raytheon/Industrial Comp
Rixon Electronics
Rohde & Schwarz
Scott Inc H H
Sierra Electronic Corp
Spectrum Instruments Inc
Taper Micrometer Corp
Tech Measurement Corp
Technical Products Co

SPECTRUM ANALYZER, RF including Panoramic Adapters

Applied Dynamics
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Contronics
Engis Equipment
FXR Div
General Microwave Corp
Gulton Industries
ITT Federal Labs
Kay Electric
Land-Air Inc
Model Engrg
Northeastern Engrg
PRD Electronics
Philco Corp
Polarad Electronics Corp
Probescope Co
Raytheon/Comm Apparatus
Sierra Electronic Corp
Space Electronics
Spectrum Instruments Inc
Sperry Microwave
Taper Micrometer Corp
Vitro Electronics

STANDARDS, Acoustic

B and K Instruments
Electronic Applications
General Radio
Korfund Co
Scott Inc H H
Security Devices Lab

STANDARDS, Capacitance

British Industries
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Electro-Measurements
Electronic Applications
General Radio
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Instruments Inc
Leeds & Northrup
Muirhead Instrs Inc
Radio Condenser Co
Rohde & Schwarz
Simmonds Precision Prod
Sprague Electric Co
Telectro Industries
Winslow Electronics Inc

STANDARDS, Frequency, Inductance, Resistance, Shunt

Abacus Inc
Acton Laboratories
American Time Products
Borg Equipment Div
British Industries
Canadian Marconi
Chesapeake Instr
Daystrom/Weston
Delta-f Inc
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Douglas Microwave Co
Electro-Measurements
Electronic Applications
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Erie Resistor
Federal Pacific
Fork Standards
Frequency Standards
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General Radio
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Holt Instrument Labs
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Industrial Instruments
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Julie Research Labs
Kennedy Co
Lavoie Labs
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Litton Systems
Manson Labs
Marconi Instruments
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Muirhead Instrs Inc
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New London Inst
Northeastern Engrg
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Swan Electric Co
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Astrosystems Inc
Farrand Controls
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Muirhead Instr
North Atlantic Indust
Theta Instrument

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Federal Pacific
GE Apparatus Sales Div
Hewlett-Packard
Lavoie Labs
Millen Mfg Co
Muirhead Instr
North Atlantic Indust
Opad Electric Co
Waterman Products
WE-Instr & Control Sys
Westinghouse Electric

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Allied Radio
Alpha Tech Pro
Bendix Radio Div
Designers for Industry
Eico Electronic Instr
Electro-Voice Inc
Harmon Electronics
Litton Systems
Microphase Corp
Model Engrg & Mfg Corp
Orion Electronic Corp
Sylvania Electronic Sys

TRANSISTOR TESTING SETS

Abrams Instrument
Aerotronic Assoc
Airborne Instr Lab
Allied Radio
American Electronic Labs
Atlantis Electronics
B & K Mfg Co
Baird-Atomic Inc
Barnes Development Co
Burton Mfg Co
Contronics
Corbett Science Labs
Cubic Corp
Curtiss-Wright IMI
Data Products Co
Datascan Inc
Daystrom/Mili Elx
Deltron Inc
Di-Tran Corp
Dunn Engrg Assocs
Dymec
Dynatran Electronics
E H Research Labs
Eder Engrg
Electric Hotpack
Electro Instruments
Electronic Instrument
Electronic Msmts Corp
Fairchild Semiconductor
GE Missile & Space Veh
GE Specialty Control
General Radio
Hickok Electrical Instr
Jerrold Electronics
Kay Electric
Kearfott Div
Kepco Inc
Lumatron Electronics
Lundell & Co
Measurements Div
Measurements Research
Metronix Inc
Missimers Inc
Monitor Systems Inc
Motorola Military Elx
Natl Electronics (Wyo)
North Electric Co
North Hills Electric
Opad Electric Co
Optimized Devices
Owen Labs
Philco Corp
PhilcoLansdale
Plug-In Instruments Inc
Precision Apparatus Co
Quan-Tech Labs
R C A Defense Electronic
Reflectone Electronics
Research Council Inc
Rowan Controller Co
Seco Electronics
Sierra Electronic Corp
Sonex Inc
Strand Engrg Co
Stromberg-Carlson Co
Sylvania Electronic Sys
Syracuse Electronics
Tech Apparatus Bldrs
Tektronix Inc
Tenco Electronics
Texas Instruments Inc
Transistor Applications
Transistor Electronics
Transistor Specialties
Triplett Electl Instr
Valor Instruments
Wiltron Co
Winston Electronics

TUBE TESTERS, Electron

Alectric Mfg Co
Allied Radio
B & K Mfg Co
Baird-Atomic Inc
British Industries
Carad Corp
Daystrom/Mil Elx
Daystrom/Weston
Eico Electronic Instr
Electronic Instrument
Electronic Msmts Corp
Fedtro Inc
General Radio
Heath Co
Hewson Co Inc
Hickok Electrical Instr
Jan Hardware Mfg
Manson Labs
Martindale Electric
Measurements Research
Metronix Inc
North Electric Co
Precision Apparatus Co
RCA Defence Electronic
Research Council Inc
Seco Electronics
Simpson Electric
Tech Apparatus Bldrs
Tektronix Inc
Triplett Electl Instr
Waters Mfg Inc

TUNING FORKS

American Time Products
Delta-f Inc
Fork Standards
Fork Standards Inc
Gyrex Corp
Klinger Scientific
Muirhead Instr
Riverbank Labs
Varo Mfg Co
Welch Scientific Co

ULTRASONIC EQUIPMENT, including Generators

Acoustica Assoc
American Electronics Inc
Andersen Labs
Arenberg Ultrasonic
Bendix Pioneer-Central
Blackstone Corp
Branson Ultrasonic
Chesapeake Instrument
Circo Ultrasonic
Communication Meas Lab
Corbett Science Labs
Designers for Industry
Dice Co J W
Dukane Corp
Eastern Specialty Co
Electron Arc
Elion Instruments
FXR Inc
Flow Measurements
Freed Transformer
GE Apparatus Sales Div
General Radio
Gulton Industries Inc
Hamilton Watch Co
Harmon Electronics
Harris Transducer
Hewlett-Packard
Instrumentation Asspc
Interelectronics
Intl Electronics
Kearfott Div
L and R Mfg Co
Laboratory for Electronics
Land-Air Inc
M-H Military Prods Grp
Magnaflux Corp
McKenna Labs
Microsonics Inc
Motorola Military Elx
Muirhead Instr
Narda Ultrasonic
National Standard Elx
Natl Ultrasonic
Powertron Ultrasonics
Princeton Div
RMS Associates
Radionics Inc
Raytheon/Comm Apparatus
Sheffield Corp
Spectrum Instruments Inc
Sturrup Inc
Sunshine Scientific
Ultrasonic Industries
U S Sonics Corp
Vibrasonics Inc
Westinghouse Electric
Zenith Mfg & Chem

VACUUM TUBE VOLTMETERS

Acton Laboratories
Allied Radio
B & K Mfg Co
Bergen Labs Inc
British Industries
Bruno-New York Inds
Canadian Marconi
Carol Electronics
Crosby-Teletronics Corp
Daystrom/Weston
Decker Corp
Dresser Elx/SIE Div
DuMont Labs Allen B
Dynamics Instrumentation
E-H Research Labs
Eico Electronic Instr
Electronic Instrument
Flow Corporation
Fluke Mfg Co
General Radio
Gertsch Products Inc
Gruenberg Electric
Gyra Electronics
Heath Co
Hewlett-Packard
Hexem Inc
Hickok Electrical Instr
Houston Instrument Corp
Industrial Control Co
Jennings Radio Mfg
Kay Electric
Kearfott Div
Keithley Instruments Inc
Marconin Instruments
Measurements Div
Measurements Research
Metronix Inc
Millivac Instr Inc
Model Engrg & Mfg Corp
Muirhead Instr
North Atlantic Indust
Orion Electronic Corp
Phaostron Instr & Elx
Precision Apparatus Co
Research Industrial Lab
Rohde & Schwarz
Rowan Controller Co
Seco Electronics
Sierra Electronic Corp
Simpson Electric
Smith-Florence Inc
Specialty Electronics
Sun Electric Corp
Sunshine Scientific
Technology Instr (Mass)
Tesla Research
Theta Instrument
Trio Laboratories
Triplett Electl Instr
Welch Mfg Co W M

VOLTAGE COMPARATORS

Anadex Instruments Inc
Autonetics
Bergen Labs Inc
Control Technology
Contronics
DJECO
Donner Scientific
Dynage Inc
Dynatronics Inc
Electro Instruments
Electronic Associates
Fluke Mfg Co
Gertsch Products Inc
Gray Instrument
Haydon Co A W (Calif)
Julie Research Labs
Kepco Inc
Kin Tel
Lavoie Labs
Measurements Research
Muirhead Instr
Non-Linear Systems
Optimized Devices
Performance Measurements
Philco Corp
Power-Tronic Systems
RCA Systems Support
Research Industrial Lab
Rotek Instrument
Sensitive Research Inst
Simpson Electric
Slaughter Co Inc
Tempo Instrument
Transformers Inc
Voltron Products
Wiancko Engrg Co

VOLTAGE, HIGH (above 2300 volts) MEASURING DEVICES and/or INDICATORS

Allied Radio
Associated Research
Beva Laboratory
Davenport Mfg
Daystrom/Weston
Del Electronics
Dittmore-Freimuth
Electric Eye Equip
Electro Instruments
Epic Inc
Fluke Mfg Co
G E Apparatus Sales Div
Gertsch Products Inc
Greibach Instrument
Gulton Industries
Hewlett-Packard
Hewson Co Inc
Industrial Devices Inc
Industrial Instrs Inc
Jennings Radio Mfg
Julie Research Labs
Natl Electronics (Wyo)
Opad Electric Co
Orion Electronic Corp
Pearson Electronics
Peschel Electronics
Pyramid Instr Corp
RCA Systems Support
Rawson Electrical Instr
Research Industrial Lab
Sensitive Research Inst
Shallcross Mfg Co
Simpson Electric
Sorensen & Co
Spellman High Voltage
Sweeney Mfg Co
Tektronix Inc
Triplett Electl Instr
WE-Director Systems
WE-Instr & Control Sys

VOLTAGE REGULATORS, Glow Tube

Amperite Co
Brach Mfg Corp
British Industries
Control Panel Corp
Davenport Mfg
DJECO
Electronic Industries Inc
Electronic Specialty Co
Freed Transformer
Kepco Inc
P and H Electronics
Philco Corp
Radiation Research Corp
Raytheon/Inst Comp
Sorensen & Co
Sylvania Lighting Prods
Tech Apparatus Bldrs
WE-Instr & Control Sys

VOLTAGE REGULATORS, Line Voltage

Allen-Bradley
Allis-Chalmers
Amelco Inc
American Electronics Inc
Amplifier Corp of Amer
Automation Dev Corp
Baird Atomic
Bergen Labs Inc
Brach Mfg Corp
British Industries
Carruthers & Fernandez
Chicago Std Transformer
Clarostat Mfg
Control Panel Corp
Curtiss-Wright
Davenport Mfg
Deltron Inc
DJECO
Electric Regulator
Electro Precision
Electronic Measurements
Electronic Specialty Co
Engineered Magnetics
Fidelity Instrument Corp
Freed Transformer
GE Apparatus Sales Div
GE Specialty Control
GE Voltage Reg Prod
Gates Radio Co
General Radio
Green Rectifier
Gulton Industries
Hamilton Standard Div
Haydon Co. A W (Calif)
Hevi-Duty Electric
Hoffman Electronics
Hoover Electronics
Hydro-Aire Co
Kato Engrg Co
Kavamil Co
Kepco Inc
Magnetic Controls Co
Magnetic Research Corp
Marathon Electric
Mastercraft Instr Co
Milro Controls
Model Engrg & Mfg Corp
NJE Corp
Nacimco Products
National Spectrographic
Opad Electric Co
P and H Electronics
Perkin Electronics
Perkin Engrg Corp
Philco Corp
Philips Electronic
Power Controls Div
Power Designs
Power-Tronic Systems
Raytheon/Comm Apparatus
Raytheon/Volt & Reg Opn
Sel-Rex Corp
Servomechanism Inc
Sola Electric
Sorensen & Co
Sterling Transformer
Superior Electric Co
Tech Apparatus Bldrs
Technique Associates
Tel-Instrument Elx
Thermo Electric Co
Torwico Electronics
Valor Instruments
Vapor Heating Corp
Varo Mfg Co
Vickers Electric Prods Div
Viking Industries
Westinghouse Director Sys

VOLT-AMMETERS

Allied Radio
Amer Standard Controls
Beede Electrical Instr
British Industries
Central Scientific
Columbia Electric
Daystrom/Weston
DeJur-Amsco Corp
Dittmore-Freimuth
Electro-Mechanical Instr
Engelhard Industries
Epic Inc
Federal Pacific
Feiler Engrg & Mfg
Ferranti Electric
GE Apparatus Sales Div
Greibach Instrument
Hickok Electrical Instr
International Instr
Keithley Instruments Inc
Martindale Electric Co
Mastercraft Instr Co
Natl Electronics (Wyo)
Pace Electrical Instrs
Phaostron Instr & Elx
Philco Corp
Physics Research Labs
Precision Apparatus Co
Pyramid Instr Corp
Q V S Inc
Rawson Electrical Instr
Rowan Controller Co
Sangamo Electric Co
Schauer Mfg Corp
Sensitive Research Inst
Simpson Electric
Smith-Florence Inc
Sun Electric Corp
Sunshine Scientific
Triplett Electl Instr
WE Instr & Control Sys
WacLine Inc
Waldom Electronics
Welch Mfg Co W M
Westberg Mfg Co
Westinghouse Electric
Yokogawa Electric Works

VOLT-AMPERE-HOUR METERS

GE Apparatus Sales Div
Philco Corp
Simpson Electric
Waldom Electronics
WE-Instr & Control Sys
Welch Mfg Co W M

VOLT-AMPERE METERS, Reactive

Daystrom/Weston
Dittmore-Freimuth
Federal Pacific
GE Apparatus Sales Div
Hickok Electrical Instr
Mastercraft Instr Co
Philco Corp
Pyhsics Research Labs
Sangamo Electric Co
Sensitive Research Instr
Simpson Electric
Sunshine Scientific
Triplett Electl Instr
Waldom Electronics
Welch Scientific
Westinghouse Electric

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MULTIMETERS® and REGULAR METERS
AC and DC types, multiple ranges, accuracy — ½ of 1%. 2 microamperes to 1 ampere DC. 2 milliamperes to 3 amperes AC.

ELECTROSTATIC VOLTMETERS
Ranges 100 V to 35,000 V, AC or DC. Resistance exceeds million megohms. Can measure static electricity.

FLUXMETERS
Laboratory and production measurements on magnets and magnetic circuits. Single push button return-to-zero.

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Our most recent development for measuring magnetic field strengths. Measures from a few gausses to 120 kilogausses.

WATTMETERS
New type, high frequencies, low power factors, very low wattages — *write for new bulletin.*

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ELECTRICAL INSTRUMENT CO.
fine instruments since 1918
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CIRCLE 219 ON READER-SERVICE CARD

VOLTMETERS, AC, Rectifier

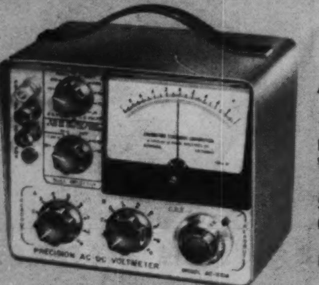
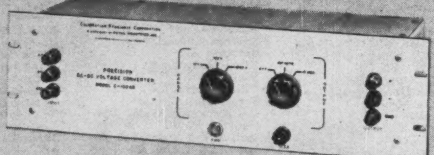
Adage Inc
Allied Radio
Assembly Products Inc
Beckman/Helipot Div
Beede Electrical Instr
British Industries
Burton Rogers
Cimron Corp
Consol Electrodynamics
Cubic Corp
Daystrom/Weston
DeJur-Amsco Corp
Dittmore-Freimuth
Electric Des & Mfg
Electro-Mechanical Instr
Electronic Instrument
Epic Inc
Esterline Angus
Federal Pacific
Fluke Mfg Co
GE Apparatus Sales Div
General Meters
General Radio
Greibach Instrument
Heath Co
Hewlett-Packard
Hickok Electrical Instr
Interlab Inc
International Instr
M-H Precision Meter
Marconi Instruments
Mastercraft Instr Co
Meters Inc
Motorola C & E
Natl Electronics (Wyo)
Orion Electronic Corp
Pace Electrical Instrs
Parker Electronics
Phaostron Instr & Elx
Philco Corp
Physics Research Labs
Precision Apparatus Co
Q V S Inc
Rowan Controller Co
Sensitive Research Inst
Simpson Electric
Sun Electric Corp
Sunshine Scientific
Trio Laboratories
Triplett Electl Instr
Voltron Products
WE-Instr & Control Sys
WacLine Inc
Waldom Electronics

DESIGN and PRE-PURCHASE DATA

on available measurement and control devices and systems—

yours for the looking—in the

PRODUCT ADS in your I&CS BUYERS' GUIDE

AC-DC VOLTMETER MODEL AC-100A
Accuracy . ±.05% + 5 microvolts DC
±.2% AC
(Accuracy of Reading)
Frequency Range . . . 30 cps to 10 KC
Voltage Ranges . . 0 to 1000 volts DC
.5 to 1000 volts AC
Stability . . . ±.002% for 105/125 V
(Reference) line voltage
±5 PPM/°C (+10°/+40°C.)
Price . . . $795* (Rack mounted, $815)

AC-DC CONVERTER MODEL C-100AR
Accuracy . . . ±.15% absolute/.5 to
1000 VAC
Frequency Range . . . 30 cps to 10 KC
5¼ x 19" panel for Rack Mounting
Price $455*

CALIBRATION > STANDARDS Precision AC-DC Converter and AC-DC Voltmeter

A new Differential Voltmeter. Fully transistorized. Wider ranges both in AC and DC. More sensitivity. Uses 1 mv null detector for both AC and DC. Extremely stable. Wider frequency range — 30 cps to 10 KC. Potentiometric. Readout in 5 digits. Uses new CSC ultra-stable Zener reference standard. Priced for today's market. Convert your DC measuring system with CSC model C-100AR. Ideal for use with differential and digital voltmeters. Accurate. Stable. Solid state circuitry. Operates on 115VAC. • Low cost permits immediate conversion to AC measurements. *Write for detailed specifications or contact your local CSC Representative.*

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CIRCLE 220 ON READER-SERVICE CARD

Welch Mfg Co W M
Westinghouse Electric
Yokogawa Electric Works

VOLTMETERS, Digital

Adage Inc
Advanced Instr Corp
Amer Standard Controls
Anadex Instruments Inc
Analogue Controls Inc
Beckman/Berkeley Div
Beckman Systems Div
Bell Inc, F W
Cimron Corp
Communications Control
Computer Equipment
Contronics
Cubic Corp
Davenport Mfg
Dymec
Dynamic System Elect
Eldorado Electronics
Electro Instruments
Electro-Logic Corp
Electronic Associates
Electronic Computer Co
Epsco Inc
Fluke Mfg Co
Hewlett-Packard
Howell Instrs
Kin Tel
Martindale Electric
Moseley Co F L
Motorola Military Elx
Non-Linear Systems
Packard Bell Computer
Philco Corp
Physical Sciences Corp
Servonics Inc
Systron-Donner
Vidar Corp
Westronics Inc

VOLTMETERS, Electrostatic

Custom Scientific Instrs
Epic Inc
Ferranti Electric
Halex Inc
Natl Electronics (Wyo)
Philco Corp
Rawson Electrical Instr
Sensitive Research Inst
Simpson Electric
Sticht Co Herman
Sunshine Scientific
Sweeney Mfg Co
WacLine Inc
Yokogawa Electric Works

VOLTMETERS, Indicating and Recording

Adage Inc
ASEA Electric Inc
Avtron Mfg
Assembly Products Inc
Barber-Colman
Beckman/Berkeley Div
Beckman/Sci & Proc Div
Beede Electrical Instr
Bergen Labs Inc
Bristol Company
Burton-Rogers
Cimron Corp
Columbia Electric
Computer Equipment
Daystrom/Weston
Dymec
Electric Des & Mfg
Electro Instruments
Epic Inc
Esterline-Angus
Federal Pacific
Fielden Electronics
Fluke Mfg Co
GE Apparatus Sales Div
General Radio
Greibach Instruments
Houston Instrument Corp
Howell Instrs
Ideal Precision Meter
International Instrs
Meters Inc
Moseley Co F L
Natl Electronics (Wyo)
Non-Linear Systems
Philco Corp
Pyramid Instr Corp
Ram Meter Inc
Rawson Electrical Instr
Sanborn Co
Sangamo Electric Co
Sensitive Research Instr
Simpson Electric
Smith-Florence Inc
Sun Electric Corp
Sunshine Scientific
Texas Instruments Inc
Triplett Electl Instr
Voltron Products
WE-Instr & Control Sys
WacLine Inc
Welch Mfg Co W M
Westinghouse Electric
Westronics Inc
Wheelco Indus Instrs
Yellow Springs Instr

VOLTMETERS, Laboratory Standard

Adage Inc
Beckman/Helipot Div
Bruno-New York Inds
Calibration Standards
Consol Electrodynamics
Davenport Mfg
Daystrom/Weston
Electro Instruments
Electro Metric Co
Electronic Applications
Electronic Associates
Epic Inc
Federal Pacific
Fluke Mfg Co
GE Apparatus Sales Div
Greibach Instruments
Hallamore Electronics
Hickok Electrical Instr
Holt Instrument Labs
Ideal Precision Meter
Julie Research Labs
Leeds & Northrup
Muirhead Instrs Inc
Orion Electronic Corp
Philco Corp
Physics Research Labs
Rawson Electrical Instr
Rowan Controller Co
Sensitive Research Inst
Simpson Electric
Smith-Florence Inc
Sunshine Scientific
Trio Laboratories
Voltron Products
WE-Instr & Control Sys
Welch Mfg Co W M
Westinghouse Electric
Yokogawa Electric Works

VOLTMETERS, Micro, RF, Millivolts and Microvolts

Adage Inc
Boonton Electronics
British Industries
Bruno-New York Inds
Daystrom/Weston
DeJur-Amsco Corp
Dresser Elx/SIE Div
Dynamics Instrumentation
E-H Research Labs
Electric Des & Mfg
Electro Instruments
Electronic Computer Co
Epic Inc
Federal Pacific
Flow Corporation
Fluke Mfg Co
Greibach Instrument
Hewlett-Packard
Hexem Inc
Hickok Electrical Instr
Howell Instrs
Ideal Precision Meter
Industrial Control Co
International Instr
Keithley Instruments Inc
Kin Tel Div
M-H Boston Div
Magnetic Instr Co
Marconi Instruments
Mastercraft Instr Co
Measurements Research
Millivac Instr Inc
Moseley Co F L
Motorola C & E
Natl Electronics (Wyo)
Orion Electronic Corp
Pace Electrical Instrs
Phaostron Instr & Elx
Philco Corp
Physics Research Labs
Precision Apparatus Co
Q V S Inc
Rawson Electrical Instr
Rohde & Schwarz
Sensitive Research Inst
Sierra Electronic Corp
Simpson Electric
Smith-Florence Inc
Stoddart Aircraft
Sun Electric Corp
Sunshine Scientific
Trio Laboratories
Triplett Electl Instr
WacLine Inc
Welch Mfg Co W M
Westinghouse Electric
Yokogawa Electric Works

VOLTMETERS, Millivoltmeters, AC, Rectifier

Adage Inc
Assembly Products Inc
Barber-Colman
Beckman/Helipot Div
Beede Electrical Instr
Burr-Brown Res
Burton Rogers Co
Communication Meas Lab
Cubic Corp
Daystrom/Weston
DeJur-Amsco Corp
Dresser Elx/SIE Div
E-H Research Labs
Electric Des & Mfg
Electro-Mechanical Instr
Epic Inc
Federal Pacific
Flow Corporation
Fluke Mfg Co
GE Apparatus Sales Div
General Meters
Greibach Instrument
Hathaway Instruments
Hewlett-Packard
Hickok Electrical Instr
Houston Instrument Corp
Howell Instrs
Ideal Precision Meter
Interlab Inc
Keithley Instruments Inc
Kin Tel Div
Magnetic Instr Co
Marconi Instruments
Mastercraft Instr Co
Meters Inc
Millivac Instr Inc
Moseley Co F L
Motorola C & E
Natl Electronics (Wyo)
North Atlantic Indust
Orion Electronic Corp
Pace Electrical Instrs
Phaostron Instr & Elx
Philco Corp
Physical Sciences Corp
Physics Research Labs
Precision Apparatus Co
Q V S Inc
Rowan Controller Co
Sensitive Research Instr
Simpson Electric
Smith-Florence Inc
Sun Electric Corp
Sunshine Scientific
Trio Laboratories
Triplett Electl Instr
WacLine Inc
Waldom Electronics
Waveforms Inc
Welch Mfg Co W M
Westinghouse Electric
Yokogawa Electric Works

VOLTMETERS, Oxide Rectifier

Allied Radio
Beckman/Helipot Div
Beede Electrical Instr
Burton Rogers Co
Daystrom/Weston
Federal Pacific
Hickok Electrical Instr
Ideal Precision Meter
Mastercraft Instr Co
Meters Inc
Natl Electronics (Wyo)
Pace Electrical Instrs
Philco Corp
Physics Research Labs
Precision Apparatus Co
Q V S Inc
Sensitive Research Instr
Sunshine Scientific
Triplett Electl Instr
WE-Instr & Control Sys
WacLine Inc
Welch Mfg Co W M
Westinghouse Electric

VOLTMETERS, Peak

Adage Inc
Allegany Instrument
Allied Radio
Associated Research
Control Devices
Curtiss-Wright
Davenport Mfg
Electro Instruments
Electronic Instrument
Electronic Msmts Corp
Federal Pacific
General Radio
Hickok Electrical Instr
Measurements Div
Philco Corp
Rawson Electrical Instr
Sensitive Research Inst
Sweeney Mfg Co
WacLine Inc

VOLTMETERS, Thermionic Rectifier

Berkshire Laboratories
Daystrom/Weston
Natl Electronics (Wyo)
Philco Corp
U S Semiconductor Prods

VOLTMETERS, Thermo

Beckman/Helipot Div
Beede Electrical Instr
Daystrom/Weston
Federal Pacific
Flow Corporation
Greibach Instrument
Holt Instrument Labs
Howell Instrs
Meters Inc
Natl Electronics (Wyo)
Philco Corp
Q V S Inc
Rawson Electrical Instr
Sangamo Electric Co
Sensitive Research Inst
Simpson Electric Co
Sun Electric Corp
WacLine Inc
Yokogawa Electric Works

VOLT-OHMMETERS

Adage Inc
Allied Radio
Assembly Products Inc
Associated Research
Bell Inc, F W
Borg-Warner Controls
British Industries
Cubic Corp
Daystrom/Weston
Electro Instruments
Electro-Logic Corp
Electronic Associates
Electronic Instrument
Epic Inc
Federal Pacific
Greibach Instruments
Heath Co
Hewlett-Packard
Hexem Inc
Hickok Electrical Instr
Instrument Labs
International Instr
Mastercraft Instr Co
Measurements Div
Molded Insulation
Natl Electronics (Wyo)
Non-Linear Systems
Philco Corp
Precision Apparatus Co
Pyramid Instr Corp

calibrate all your precision equipment with the new **YEW**

VOLTS & AMPERES

VERSATILE DC17 RANGE PORTABLE STANDARD VOLT-AMMETER

MODEL MPF-17R

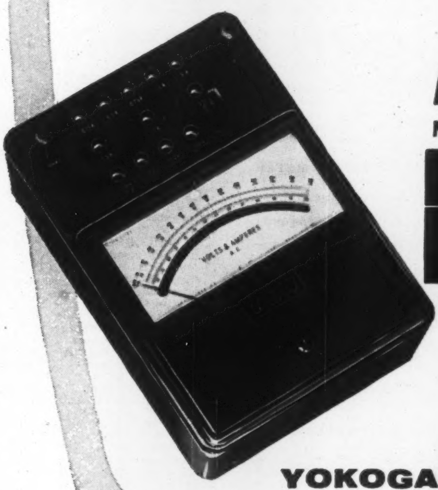
highly accurate readings especially recommended for research institutes

Range		Scale Div.	Approx. Resistance or Voltage Drop
Voltage	1000/300/100/30/10/3V		1000Ω/V
Current	30/10/3/1A 300/100/30/10/3/1mA 50mV (for external Shunts)	150/100	Approx. 50mV (50mV) 53.7Ω

- These all-in-one units may be substituted for many single range units. Accuracy of both units within ½ of 1% fsd. Calibration certificate accompanies each unit.
- Recommended for general testing where long, easy-to-read scales are desired.
- Simple foolproof operation. Range selector peg gives secure contact.
- Both AC and DC instruments are shielded from external magnetic fields.
- Working principle MPF-17R moving coil type. Shunts and multipliers self-contained. Working principle SPF-13R moving iron type. Transformers self-contained.
- Units supplied with fitted velvet lined storage case.
- Compact in size, units measure only 7⅛ x 10¼ x 4¾.

AC13 RANGE VOLT-AMMETER

MODEL SPF-13R



Range		Scale Div.	Approximate Power Consumption
Voltage	750/300/150/75/30V	150	7.5VA in any range
Current	30/15/7.5/3/1.5/0.75 0.3/0.15A	150	2.1/1.2/1.0/0.9/0.8/0.8/0.7 0.5VA

Other YEW portable standards available:
Rectifier Type Milliammeters and Voltmeters,
Thermocouple Type High Frequency Milliammeters and
Voltmeters, Electro-Dynamometer Type Wattmeters

Write today for literature.

YOKOGAWA ELECTRIC WORKS, INC.
40 Worth Street, New York 13, N. Y.
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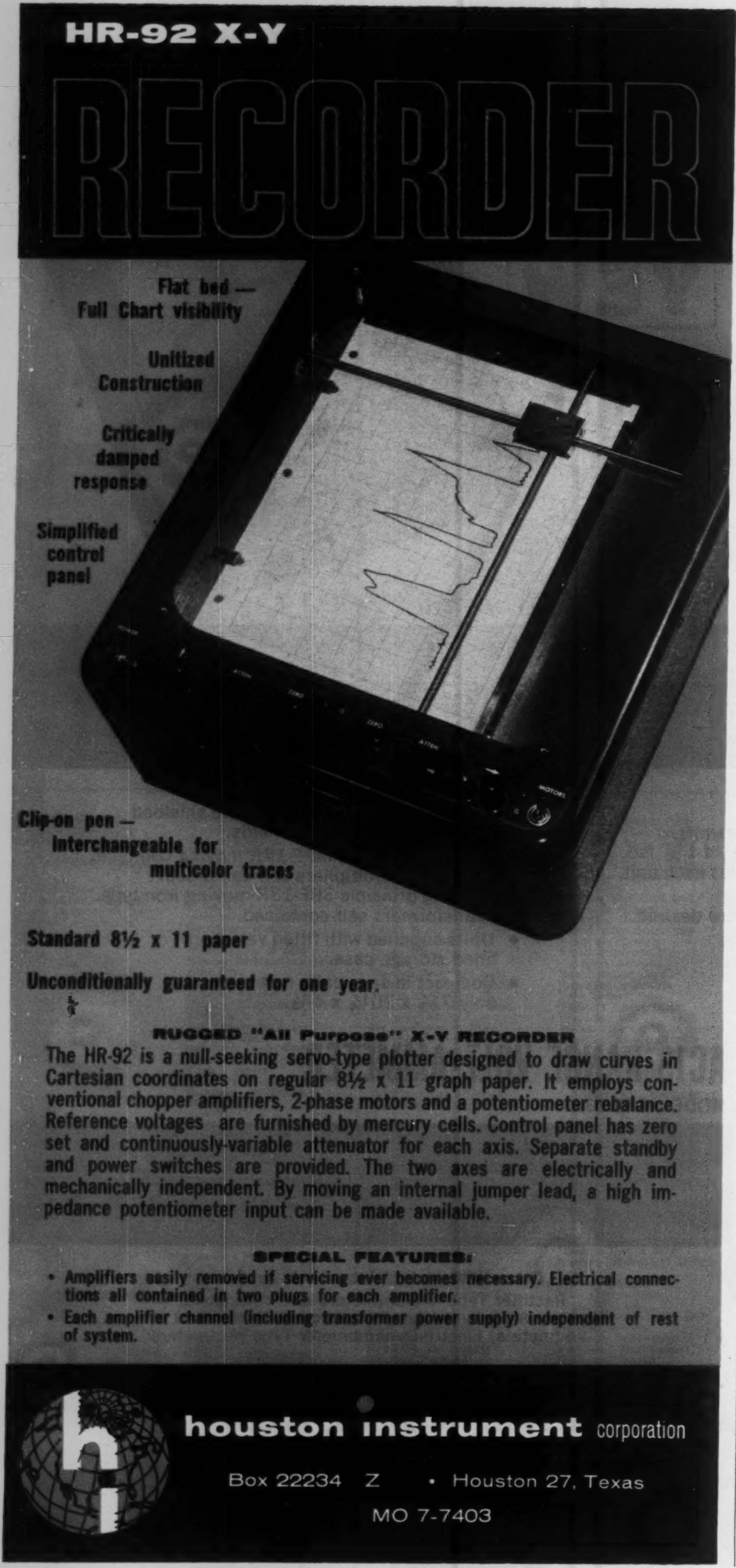
CIRCLE 221 ON READER-SERVICE CARD



HR-92 X-Y
RECORDER
Flat bed — Full Chart visibility
Unitized Construction
Critically damped response
Simplified control panel
Clip-on pen — interchangeable for multicolor traces
Standard 8½ x 11 paper
Unconditionally guaranteed for one year.

RUGGED "All Purpose" X-Y RECORDER

The HR-92 is a null-seeking servo-type plotter designed to draw curves in Cartesian coordinates on regular 8½ x 11 graph paper. It employs conventional chopper amplifiers, 2-phase motors and a potentiometer rebalance. Reference voltages are furnished by mercury cells. Control panel has zero set and continuously-variable attenuator for each axis. Separate standby and power switches are provided. The two axes are electrically and mechanically independent. By moving an internal jumper lead, a high impedance potentiometer input can be made available.

SPECIAL FEATURES:

- Amplifiers easily removed if servicing ever becomes necessary. Electrical connections all contained in two plugs for each amplifier.
- Each amplifier channel (including transformer power supply) independent of rest of system.

houston instrument corporation

Box 22234 Z • Houston 27, Texas

MO 7-7403

CIRCLE 222 ON READER-SERVICE CARD

Q V S Inc
Rowan Controller Co
Simpson Electric
Southwestern Indus Elx
Sticht Co Herman
Sun Electric Corp
Sunshine Scientific
Trio Laboratories
Triplett Electl Instr
Vidar Corp
WE-Instr & Control Sys
WacLine Inc
Welch Mfg Co Wm

VOLT-OHM-MILLIAM-METERS

Adage Inc
Air-O-Tronics Engrg
Allied Radio
Associated Research
B & K Mfg Co
British Industries
Daystrom/Weston
Dresser Elx/SIE Div
EIco Electronic Instr
Electro-Logic Corp
Electronic Instrument
Electronic Msmts Corp
Epic Inc
Federal Pacific
Greibach Instrument
Heath Co
Hewlett-Packard
Hexem Inc
Hickok Electrical Instr
International Instr
Martindale Electric Co
Mastercraft Instr Co
Meters Inc
Millivac Instr Inc
Molded Insulation
Natl Electronics (Wyo)
Philco Corp
Physics Research Labs
Precision Apparatus Co
Princeton Div
Q V S Inc
Rowan Controller Co
Simpson Electric
Smith-Florence Inc
Sun Electric Corp
Sunshine Scientific
Triplett Electl Instr
United Mineral & Chem
Vidar Corp
WacLine Inc
Welch Mfg Co W M
WE-Instr x Control Sys
Westinghouse Electric
Yokogawa Electric Works

VSWR INDICATORS

Alford Mfg
Allied Radio
Bendix Scintilla Div
British Industries
Calif Technical Indus
Canadian Marconi
Cubic Corp
Douglas Microwave Co
Edison Industries T A
Electro Impulse Lab
FXR Div
General Radio
Hewlett-Packard
Marconi Instruments
Narda Corp
PRD Electronics
Philco Corp
Research Council Inc
Rixon Electronics
Spectra Electronics
Technical Material
WacLine Inc
Waveline Inc

WATTHOUR METERS

Duncan Electric Co
Ferranti Electric
GE Apparatus Sales Div
Hickok Electrical Instr
O M I Corp
Sangamo Electric Co
Simpson Electric
Triplett Electl Instr
Waugh Engineering Co
Westinghouse Electric

WATTHOUR METER TESTERS

Eastern Specialty Co
Knopp Inc
Multi-Amp Electronic
O M I Corp
Power Tronic Systems
Sangamo Electric Co
Sorsensen & Co
States Company
Stocker & Yale Inc

WATTMETERS, Clamp Type

GE Apparatus Sales Div
Hickok Electrical Instr
Natl Electronics (Wyo)
Sunshine Scientific
Triplett Electl Instr

WATTMETERS, Electrostatic

Hickok Electrical Instr
Triplett Electl Instr

WATTMETERS, Indicating

Assembly Products Inc
Borg-Warner Controls
Daystrom/Weston
Electric Regulator
Electro Impulse Lab
Epic Inc
Federal Pacific
Fluke Mfg Co
GE Apparatus Sales Div
Hickok Electrical Instr
Industrial Test Equip
Martindale Electric
Natl Electronics (Wyo)
PRD Electronics
Physics Research Labs
Radar Measurements Corp
Rawson Electrical Instr
Sangamo Electric Co
Sensitive Research Inst
Simpson Electric
Sunshine Scientific
Triplett Electl Instr
Voltron Products
WacLine Inc
Welch Mfg Co W M
WE-Instr & Control Sys
Westinghouse Electric
Yokogawa Electric Works

WATTMETERS, Laboratory Standard

Bendix Scintilla Div
Borg-Warner Controls
Daystrom/Weston
Electronic Applications
Epic Inc
Federal Pacific
GE Apparatus Sales Div
Hickok Electrical Instr
Physics Research Labs
Radar Measurements Corp
Rawson Electrical Instr
Sensitive Research Inst
Sierra Electronic Corp
Simpson Electric
Somerset Radiation Lab
Sunshine Scientific
Weinschel Engrg
Welch Scientific Co
WE-Instr & Control Sys
Westinghouse Electric
Yokogawa Electric Works

WATTMETERS, Microwave

Amerac Inc
Bendix Scintilla Div
Borg-Warner Controls
Brunswick Instruments
Canadian Marconi
Chemalloy Electronics
Control Electronics
Cubic Corp
Douglas Microwave Co
Electro Impulse Lab
Electronic Applications
Energy Kontrols
Hewlett-Packard
McIlvaine O T
Rohde & Schwarz
Sierra Electronic Corp
Sperry Microwave
Waveline Inc
Weinschel Engrg

WATTMETERS, Reactive

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Federal Pacific
GE Apparatus Sales Div
Natl Electronics (Wyo)
Physics Research Labs
Sensitive Research Instr
WE-Instr & Control Sys
Westinghouse Electric

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Daystrom/Weston
Esterline-Angus
GE Apparatus Sales Div
Hathaway Instruments
Leeds & Northrup
Offner Electronics
Sanborn Company
Sangamo Electric Co
WE-Instr & Control Sys
Westinghouse Electric
Westronics Inc

WOW METER

Amplifier Corp of Amer
D & R Ltd
Electric Eye Equip
Hurletron Inc
Sterling Precision

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Land-Air Inc
Peschel Electronics
Sensitive Research Instr
Sorensen & Co
Universal X-Ray Prods

X-Y RECORDERS

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Aero Service Corp
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American Tradair
Bristol Co
Calif Computer Prods
Computer Systems Inc
Electro Instruments
Electronic Associates
Engis Equipment
Genesys Corp
Geotechnical Corp
Gerber Scientific Inst
Gilmore Industries
Houston Instrument Corp
Hughes Products
Land-Air Inc
Leeds & Northrup
Librascope Div
Link Div
M-H Brown Instrs Div
Mast Development
Milgo Electronics
Moseley Co F L
Phoenix Precision Instr
Radiation Inc
Sanborn Company
Seiscor Div
Technintrol Engrg
Tektronix Inc
Tele-Dynamics Div
Telectro Industries

Analytical and Laboratory Instrumentation

4

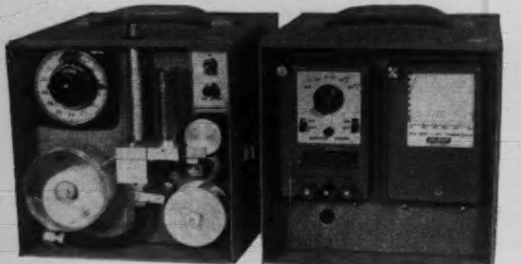
1962 BUYERS' GUIDE

"SCIENTIFIC" INSTRUMENTS, APPARATUS,
AND ACCESSORIES FOR "ON-LINE"
OR RESEARCH ANALYSES
IN PLANT OR LABORATORY—AND MEDICAL
AND ELECTROMEDICAL EQUIPMENTS

RECORDS TOXIC GASES AND DUST

LOW COST **PHOTOTAPE SAMPLER**

AUTOMATICALLY SAMPLES EVALUATES RECORDS INSTANTLY MONITORS & RECORDS DUST AND GAS CONCENTRATION WITHOUT OPERATOR ATTENTION



The Phototape Sampler automatically collects samples on paper tape and then evaluates and permanently records concentration of dust on a strip chart. Also ideal for determining chlorine, phosgene, hydrogen sulfide, and many other gases. Principle of measurement is based on decrease of light transmission through the paper resulting from accumulation of contaminant on the sample spot.

SAVES HOURS OF LABOR, PAYS FOR ITSELF! Completely eliminates manual collection and reading of sampled tapes. Eliminates calculations ordinarily required to establish time of sample.

THE RECORDING UNIT contains an amplifier and chart recorder. Photocell readings are fed to Recording Photodensitometer Unit which provides immediate monitoring of samples plus a permanent, continuous 31 day record in values of dust or gas concentration related to the hour of day printed on the chart paper.

#B-23008 Phototape Sampler with single timer, 110V 60C $657.00
#B-23108 Phototape Sampler with dual timer, 110V 60C $697.00
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CIRCLE 223 ON READER-SERVICE CARD

GOW-MAC GAS ANALYSIS INSTRUMENTS

By the Thermal Conductivity Method —

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- ON-STREAM DETECTOR CELLS
- CHROMATOGRAPHY DETECTOR CELLS For ¼" Columns and Capillary Columns
- TEMPERATURE REGULATED CELLS TO 300° C+
- PORTABLE ANALYZERS (Gas Masters)
- PANEL INSTRUMENTS — Indicate — Record — Control
- GAS BLENDER (Automatically mixes forming gas and other binaries)
- EXPLOSION-PROOF UNITS

By the Gas Density Method —

- DETECTOR CELLS
  - — No Calibration Required
  - — Linear Across Broad Ranges
  - — Less than 1% Error
  - — Nitrogen Eluting Gas
  - — Non-destructive to Sample

WRITE FOR COMPLETE INFORMATION mentioning the type of instruments in which you are interested. Please address inquiries to DEPARTMENT BG.

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Phoenix Precision Instr
Schuco Scientific

AIR PARTICLE SIZE INSTRUMENTS (see also Particle Instruments)

Bearing Inspection Inc
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Coulter Indus Sales
Fisher Scientific
Gast Mfg Corp
Gelman Instrument Co
General Mills Inc
Hill & Co, E Vernon
Instrument Corp
Instr Development Co
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Mine Safety Appliances
Phoenix Precision Instr
Photobell
Process & Instruments
Royco Instruments
Staplex Co

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Curtiss-Wright
Davis Instruments
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Electronics International
Ercona Corp
Farris Engrg Corp
Gelman Instrument
Hastings-Raydist
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Industrial Instruments
Instr Development Co
Jarrell Ash Co
Kruger Instrs Harold
Leeds & Northrup
Loe Engrg Co
Mast Development
Millipore Filter Corp
Mine Safety Appliances
National Appliance Co
National Spectrographic
Nuclear Elx Corp
Nuclear Measurements
Nucleonic Corp of Amer
Ozone Res & Eqpt Corp
Perkin-Elmer Corp
Phoenix Precision Instr
Photobell
Photomechanisms
Radex Corp
Reliance Instr Mfg
Research Appliance Co
Royco Instruments
Schmidt Instr
Staplex Co
Texas Nuclear Corp
Thermco Instrument Corp
Tracerlab Inc
U S Nuclear
Victoreen Instrument

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Analytic Systems
Analytical Measurements
Applied Research Labs
Automation Products
Baird-Atomic
Bausch & Lomb
Beckman/Sci & Proc Div
Beckman/Spinco Div
Bendix Cincinnati Div
Beva Laboratory
Brush Instruments Div
Bubble-O-Meter
Burrell Corp
Central Scientific
Coleman Instrument
Consol Electrodynamics
Corning Glass
Coulter Indus Sales
Cox Instruments
Davis Instruments
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Eldorado Electronics
Elion Instruments
Ercona Corp
Fischer & Porter Co
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Foxboro Company
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Gulton Industries
Greiner Co Emil
Hallikainen Instrs
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Kocour Company
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Laboratory Equip Corp
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Physical Sciences Corp
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Schlumberger Corp
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Technical Oil Tool Corp
Telechrome Mfg Corp
Torsion Balance Co
Tracerlab Inc
Victoreen Instr Co
Waters Associates

ANEMOMETERS, Hotwire

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Gelman Instrument
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Advanced Dynamics
Auto Control Labs
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Barnstead Still
Central Scientific
Gardner Lab
Greiner Co Emil
High Pressure Equip
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Parr Instrument Co
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Ruska Instrument Corp
Soiltest Inc
Temperature Engrg Corp

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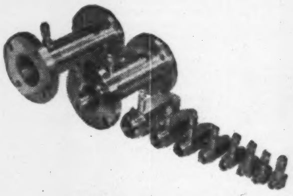
American Data Div
Burrell Corp
Cahn Instrument Co
Central Scientific
Coleman Instrument Co
Dietert Co
Epic Inc
Erb & Gray
Exact Weight Scale
Federal Pacific
Fisher Scientific Co
Gardner Lab
Greiner Co Emil
Gurley W & L E
Heusser Instrument
Mettler Instr Corp
Microchemical Specialties
Microtech Services
Nuclear Materials & Equip
Nurnberg Scientific
Ohaus Scale Corp
Pfaltz & Bauer
Schuco Scientific
Schueler & Co
Scientific Glass App
Soiltest Inc
Stoelting Co C H
Streeter Amet
Testing Machines Inc
Torsion Balance Co
Triner Scale & Mfg
Vidar Corp
Voland Corp
Welch Mfg Co W M
Worden Laboratories

BATHS, Calibration and Testing, including Water and Oil (see also Temperature Calibration—Cat. I)

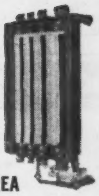
AC-Lab Equipment
Ace Glass Inc
Apex Scientific Co
Auto-Control Labs
Barnstead Still
Bayley Instrument
Blue M Electric
Brabender Instr C W
Coleman Instrument Co
Control Indicating Corp
Dow Corning Corp
Electric Hotpack
Eppley Laboratory
Erb & Gray
Fisher Scientific Co
Gardner Lab
Greiner Co Emil
Hallikainen Instrs
Hieatt Engineering
International Radiant
Koehler Instr Co
Labline Inc
Leeds & Northrup
Martin & Co H S
Missimers Inc
Modern Lab Equip
National Appliance Co
Nurnberg Scientific
Philadelphia Scien Glass
Precision Scientific Co
Process & Instruments
Research Appliance Co
Ruska Instrument Corp
Schuco Scientific
Schueler & Co
Scott Testers Inc

Flow Meters



TURBINE FLOWMETERS

Accuracy ½% of reading. Ranges 0.01 to 10,000 gpm. Single bearing design, easily disassembled for cleaning without affecting calibration. Readouts shown below.
Request Bulletin 1384B-A



VARIABLE AREA

Flowmeters, accuracy ½% and 1% of reading. Single and multiple stages. For air, oil, water, fuel. Ranges 5 to 130,000 pph.
Request Bulletin 1375-A

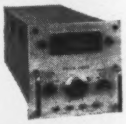
FLOW NOZZLES

For air and liquid flow. Made to A.S.M.E. specifications. Twenty sizes available.
Request Bulletin 1392-A

FLOW MEASUREMENT

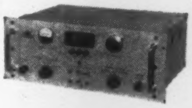
There is a Cox Instrument for just about every flow measurement requirement. Since 1912 Cox has been a pioneer in the development of *precision* measuring instruments. Cox application engineers are available to assist you on any flow measurement requirement.

Electronic Flow Indicators



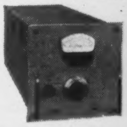
DIGITAL FLOW INDICATOR

Single channel with built-in frequency converter. Accuracy ¼% of scale. Panel or portable mounting, size 7x7x15.
Request Bulletin 1389-A



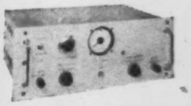
DIGITAL FLOW INDICATOR

Multiple channel with built-in frequency converter. Accuracy ¼% of scale. Rack mounting. Available in explosion-proof model.
Request Bulletin 1387-A



ANALOG FLOW INDICATOR

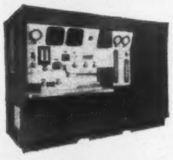
Single channel. Accuracy 1% or 2% of scale. Built-in frequency converter. Size 7x7x15.
Request Bulletin 1355-A



ANALOG FLOW INDICATOR

Multiple channel. Accuracy 1% or 2% of scale. Built-in frequency converter. Rack mounting. Available in explosion-proof model.
Request Bulletin 1355-A

Flow Standards



PRIMARY FLOWMETER CALIBRATOR

Precision weight-time primary flow standard for liquid flowmeter calibration. Seven standard models: 5 to 150,000 pph. Repeatability and correlation ±0.1%. Easy to operate.
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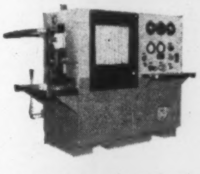
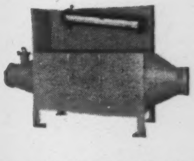


COMPARISON CALIBRATOR

Uses a precision variable area flowmeter as a secondary standard for calibration of other flowmeters. Accuracy ¼, ½ or 1% of reading.

COMPARISON CALIBRATOR
Turbine

Uses precision turbine flowmeter as secondary standard for calibration. Accuracy ½% of reading.



COMPARISON CALIBRATOR
Air

Secondary standard for air flowmeter calibrations. Uses precision flow nozzles. Accuracy ½% of reading.

COX instruments

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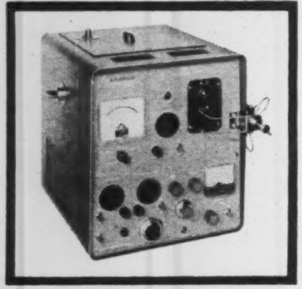
APPLICATION COVERAGE

Loenco Instruments Feature:

- Wide Temperature Range
- Choice of Highest Performance Thermal Conductivity and Ionization Type Detectors
- Independent Injection Port Temperature Control
- Reproducible Sampling For Gases and Liquids
- Prep Scale Attachments
- Electronic Detector Oven Temperature Control For Highest Stability
- Finest Quality Construction For Low Maintenance
- Convenient Design For Easy Operation

MODEL 15B SERIES
Additional Features:

- Thermal Conductivity, Hydrogen Flame, or Beta Ionization Detectors (Two May Be Simultaneously Installed)
- Hot Bulkhead Fitting For External Columns —Programmed or Cold Bath
- Column Switching
- Two Column Series System
- Optional Isolated Detector Oven
- High Performance Direct Coupled or Vibrating Reed Electrometers For Ionization Detectors. Feed Back Types Eliminate Non-Linearity



Priced From $820

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Analytical Control Instrumentation
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Sta-Warm Electric
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Thermo Electric Co
United Aircraft Prods
Victory Engineering
Webber Mfg Co

BOMBS, High Pressure for Testing Bottom Hole Samples, Oil and Gas

Autoclave Engineers
Coleman Instrument Co
Exline Engrg
Greiner Co Emil
High Pressure Equip
Hoke Inc
Labline Inc
Precision Scientific Co
Ruska Instrument Corp

BOMBS, Hydrogenation, Lean Oil

Autoclave Engineers
Greiner Co Emil
High Pressure Equip
Hoke Inc
Nurnberg Scientific
Parr Instrument Co
Pressure Products Indust

BOMBS, Micro Combustion

Autoclave Engineers
Greiner Co Emil
Labline Inc
Nurnberg Scientific
Parr Instrument Co
Pressure Products Indust

BOMBS, Oxygen, Sodium Peroxide, Sulphur, etc.

Arcweld Mfg
Autoclave Engineers
Emerson Apparatus
Greiner Co Emil
Hill & Co, E Vernon
Koehler Instr Co
Labline Inc
Nurnberg Scientific
Parr Instrument Co
Precision Scientific Co
Scott Testers Inc

BOMBS, Reid Vapor Pressure

Central Scientific
Gardner Lab
Greiner Co Emil
Hoke Inc
Koehler Instr Co
Labline Inc
Nurnberg Scientific
Precision Scientific Co

BURETTES

Atkins Technical Inc
Bishop & Co
Brabender Instr C W
Burrell Corp
Corning Glass
Fischer & Porter Co
Fisher Scientific Co
Gardner Lab
Greiner Co Emil
Greiner Glassblowing
Greibel Co, E
Labglass Inc
Manostat Corp
Martin & Co H S
Microchemical Specialties
Nester Company
Nurnberg Scientific
Scientific Glass
Scientific Industries
Will Corporation

CALORIMETERS, Adiabatic, Coal and Fuel

Applied Physics Corp
Electro Impulse
Emerson Apparatus
Gardner Lab
Greiner Co Emil
Nurnberg Scientific
Parr Instrument Co
Precision Scientific Co
Projects Unlimited
Schuco Scientific

CALORIMETERS, Gas

American Meter
Auto Control Labs
Cutler-Hammer
Gardner Lab
Greiner Co Emil
Mine Safety Appliances
Nurnberg Scientific
Precision Scientific Co
Pressure Products Inc

CALORIMETERS, Miscellaneous, including Peroxide Bomb, Photoelectric, Steam, etc.

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Ellison Draft Gage Co
Greiner Co Emil
Microwave Associates
NRC Equipment
Nurnberg Scientific
PRD Electronics
Parr Instrument Co
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Engis Equipment
Gaertner Scientific Corp
Gardner Lab
Greiner Co Emil
Henson Co Fred C
Instrumentation Assoc
Jarrell Ash Co
Klinger Scientific
Labline Inc
Natl Instrument Co

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Erb & Gray
Fisher Scientific Co
Gardner Lab
Greiner Co Emil
Gyrex Corp
Instrumentation Assoc
Integrated Dynamics Div
Labline Inc
Microchemical Specialties
Mine Safety Appliances
Nurnberg Scientific
Palos Optical Co
Parabam Inc
Phillips-Drucker Inc
Precision Scientific Co
Research Specialties Co
Schaevitz Engineering
Sorvall Inc
Testing Machines Inc
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Foxboro Company
Gardner Lab
Gelman Instrument Co
Greiner Co Emil
Hellige Inc
Kruger Instrs Harold
Lamotte Chemical Prods
Martin & Co H S
Mine Safety Appliances
Nester Company
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Barnes Engineering
Beckman/Sci & Proc Div
Beckman/Spinco Div
Burrell Corp
Carad Corp
Central Scientific
Consol Electrodynamics
Corning Glass
Davis Instruments
Electric Hotpack
Epic Inc
Fischer & Porter Co
Fisher Scientific Co
Forro Scientific
Foxboro Company
Gardner Lab
Gas Purifying Mtls
Gelman Instrument Co
Gow-Mac Instrument
Greenbrier Instrs
Greiner Co Emil
Hallikainen Instrs
Industrial Instruments
Instrumentation Assoc
Jarrell Ash Co
L K B Instruments
Labglass Inc
Labline Inc
Largent Co
Leeds & Northrup
Lockwood & McLorie Inc
Loe Engrg Co
M-H Brown Instrs Div
Microchemical Specialties
Milton Roy Co
Mine Safety Appliances
National Appliance Co
Natl Instrument Labs
Nuclear-Chicago
Nurnberg Scientific
Pacific Technical
Packard Instrument Co
Perkin-Elmer Corp
Pfaltz & Bauer
Phoenix Precision Instr
Precision Scientific Co
Radiation Research Corp
Research Specialties
Schlumberger Corp
Schuco Scientific
Schueler & Co
Scientific Glass
Sorvall Inc Ivan
Temperature Engrg Corp
Texas Instruments Inc
Tracerlab Inc
Ultra-Violet Prods
Victory Engineering
Vidar Corp
Wheelco Indus Instrs
Will Corporation
Zeiss Inc Carl

CLOUD AND POUR TEST APPARATUS

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Apex Scientific Co
Automation Products
Fisher Scientific Co
Gardner Lab
Greiner Co Emil
Greiner Glassblowing
Labline Inc
Murphy & Miller
Nurnberg Scientific
Precision Scientific Co
Scientific Glass App
Temperature Engrg Corp

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Burrell Corp
Greiner Co Emil
Gardner Lab
Laboratory Equip Corp
Nurnberg Scientific
Parr Instrument Co
Precision Scientific Co
Pyrometer Instr Co
Schuco Scientific
United Aircraft Prods

COCKS, Glass

Corning Glass
Fischer & Porter Co
Fisher Scientific
GRS Corp
Gardner Lab
Glass Instruments Inc
Greiner Co Emil
Greiner Glassblowing
Labglass Inc
Martin & Co H S
Nester Company
Owens-Illinois Glass Co
Texas Instruments Inc
Precision Glass Products
Scientific Glass App
Smith Co Inc Arthur

COCKS, Metal

Conant Bros Co
Dragon Engineering Co
Gardner Lab
Greiner Co Emil
Imperial Brass Mfg
Manning Maxwell & Moore
Owens-Illinois Glass Co
Weatherhead Co

COLOR ANALYZERS AND COMPARATORS, Photo-Electric

Alfa American Corp
Bausch & Lomb
Beckman Instruments
Beckman/Sci & Proc Div
Coleman Instrument
Eldorado Electronics
Engis Equipment
Epic Inc
Ercona Corp
Fisher Scientific
Gardner Lab
Gelman Instrument Co
Golden Instruments
Greiner Co Emil
Hagan Chem & Controls
Hallikainen Instrs
Hellige Inc
Hunter Assoc Labs
Hurletron Inc
Infrared Industries
Instrumentation Assoc
Instr Development Labs
Jarrell Ash Co
Laboratory Equip Corp
Librascope Div
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M-H Rubicon Div
Macbeth Inst Corp
Manufacturers Engrg
Mason Inst Co
Milton Roy Co
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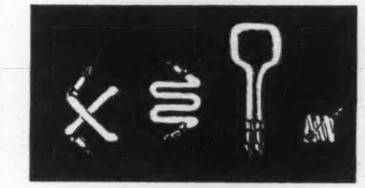

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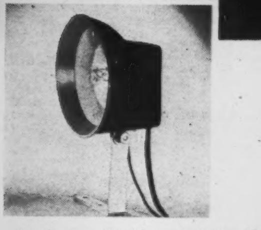

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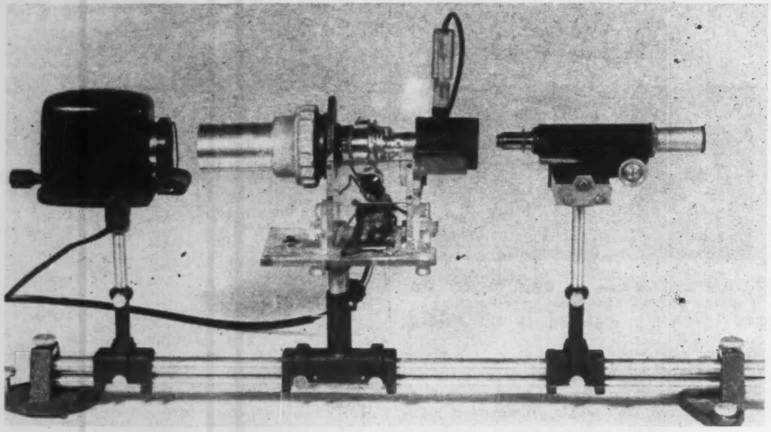

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Graf-Apsco Co
Greiner Co Emil
Instrumentation Assoc
LKB Instruments
Mico Instr Co
National Instrument Labs
Nurnberg Scientific
Pfaltz & Bauer
Philips Electronic
Process & Instruments
Schuco Scientific
Schueler & Co
Sorvall Inc

MILK TEST INSTRUMENTS

Advanced Instruments
Alfa American Corp
Automation Products
Brabender Instr C W
Controls for Radiation
Fisher Scientific
Gardner Lab
Greiner Co Emil
Griebel Co E
Marshall Instrs
National Appliance Co
Nurnberg Scientific
Owens-Illinois Glass Co
Precision Scientific Co
Schuco Scientific
Scientific Glass App
Torsion Balance Co
U S Nuclear
W & W Mfg Co
Will Corporation

MOISTURE INDICATORS

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Aeronaut & Instr Div
Analytical Measurements
Atkins Technical Inc
Boonton Polytechnic
Brabender Corp
Brabender Instr C W
Cambridge Instrument
Central Scientific
CompuDyne Corp
Consol Electrodynamics
Curtiss Wright
Daystrom/Weston
Dietert Co
Electric Eye Equip
Fielden Electronics
Foxboro Company
Gardner Lab
Gas Drying Inc
Grain Lab Equip
Greiner Co Emil
Hill & Co E Vernon
Hurletron Inc
Industrial Instruments
Industrial Nucleonics
Instruments Inc
Kontes Glass Co
Labline Inc
Mine Safety Appliances
Moisture Register Co
Nuclear-Chicago
Ohaus Scale Corp
Pfaltz & Bauer
Princeton Div
Robbins Aviation Inc
Schlumberger Corp
Soiltest Inc
Stewart M C
Testing Machines Inc
Tracerlab Inc
Trinity Equipment
Weighing & Controls

MUD ANALYSIS INSTRUMENTS

Automation Products
Brabender Instr C W
Carad Corp
Consol Electrodynamics
Davis Instruments
Greiner Co Emil
Industrial Instruments
Loe Engrg Co
Mine Safety Appliances

NATURAL SCIENCE SUPPLIES

Central Scientific
Graf-Apsco Co
Nurnberg Scientific
Schuco Scientific

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Alfa American Corp
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Epic Inc
Erb & Gray
Ercona Corp
Fisher Scientific Co
Golden Instruments
Greiner Co Emil
Phoenix Precision Instr
Schuco Scientific
Zeiss Inc Carl

NUETRON SOURCES

Applied Radiation Corp
High Voltage Engrg
Hughes Aircraft
Klinger Scientific
Nuclear-Chicago
Nucleonic Corp of Amer
Radiation Applications
Texas Nuclear Corp
Tracerlab Inc
U S Nuclear
U S Radium Corp

NUCLEAR MAGNETIC RESONANCE ANALYZERS

Carter Company J C
Schlumberger Corp

ODOR DETECTING INSTRUMENTS

Consol Electrodynamics
Instrumentation Asspc
Jarrell Ash Co
Johnson-Williams Inc

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Ace Glass Inc
Corning Glass
Gardner Lab
Greiner Co Emil
Martin & Co H S
National Appliance Co
Nurnberg Scientific
Phillips-Drucker Inc
Precision Scientific Co

OPACIMETERS

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Dorsett Electronics Inc
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Gelman Instrument Co
Syracuse Electronics

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Alfa American Corp
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Davidson Optronics
Edmund Scientific Co
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look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

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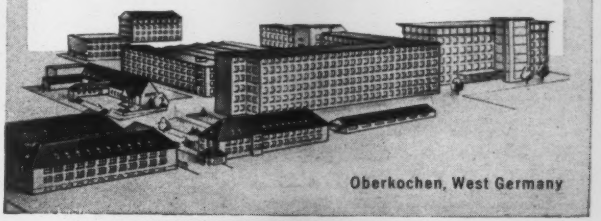

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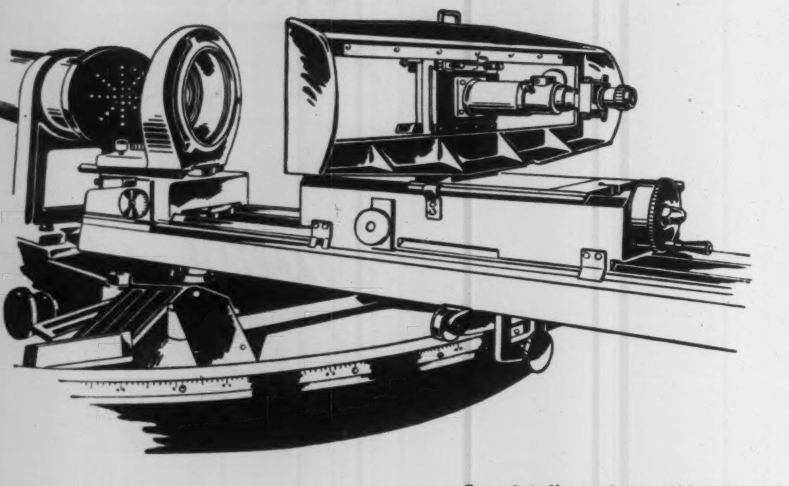
ASKANIA LENS TESTING BENCH



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Schuco Scientific
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OPTICAL TESTING INSTRUMENTS (see also Lens Testers—Cat 6)

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Askania-Werke
Baird Atomic
Bausch & Lomb
Berger & Sons C L
Buhl Optical Co
Coast Instrument
Davidson Optronics
Diffraction Limited
Edmund Scientific
Engelhard Hanovia
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Finescale Co
Gaertner Scientific Corp
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Lerma Engrg Corp
Mast Development
Palos Optical Co
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Cooke Inc F J
Delta-F Inco
Despatch Oven Co
Electric Hotpack
Emerson Apparatus
Erb & Gray
Gardner Lab
Greiner Co Emil
Hevi-Duty Electric
High Vacuum Equip
Huppert Co K H
Kahle Engineering Co
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Leeds & Northrup
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Pacific Transducer Corp
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Precision Scientific Co
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Schuco Scientific
Scott Testers Inc
Soiltest Inc
Statham Instruments
Temperature Engrg Corp
Tenney Engineering
Testing Machines Inc
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Universal Dynamics Corp
Webber Mfg Co
Williamson Development

Ovens, Laboratory

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Acme Electric Heating
Airtronics Inc
American Gas Furnace
Auto-Control Labs
Blue M Electric
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Despatch Oven Co
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Dietert Co
Drying Systems Co
Electric Hotpack
Erb & Gray
Fisher Scientific Co
Gardner Lab
Greiner Co Emil
Hayes Inc C I
Hevi-Duty Electric
High Vacuum Equip
Huppert Co K H
International Radiant
Kinney Vacuum Div
L and L Mfg Co
Labline Inc
Laboratory Equip Corp
Leeds & Northrup
Lucifer Furnaces
Modern Lab Equipment
National Appliance Co
Nurnberg Scientific
Pacific Transducer Corp
Pimex Inc
Precision Scientific Co
Research Vacuum Supply
Schuco Scientific
Selas Corp of America
Soiltest Inc
Statham Instruments
Telectro Industries
Temperature Engrg Corp
Tenney Engineering
Testing Machines Inc
Thermo Electric Co
Webber Mfg Co
Welch Mfg Co W M
Will Corporation
Williams Apparatus

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Atlas Electric Devices
Automation Products
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Brabender Instr C W
Burrell Corp
Ercona Corp
Fisher Scientific Co
Gardner Lab
Greiner Co Emil
Hallikainen Instrs
Hayes Inc C I
Koehler Instr Co
Nurnberg Scientific
Sunshine Scientific
Unit Process Assemblies
Zeiss Inc Carl

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Automation Products
Gardner Lab
Koehler Instr Co
National Appliance Co
Temperature Engrg Corp

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Cahn Instrument Co
Coulter Indus Sales
Dietert Co
Erb & Gray
Fisher Scientific Co
Gardner Lab
Gelman Instrument Co
General Mills Inc
Image Instruments
Instrument Corp
Instrument Corp of Amer
Instr Development Co
LaPine Scientific Co
Millipore Filter Corp
Mine Safety Appliances
Newark Wire Cloth
Nuclear-Chicago
Palo Lab Supplies
Palos Optical Co
Phoenix Precision Instr
Precision Scientific Co
Royco Instruments
Sanborn Company
Unitron Instrument
Zeiss Inc Carl

PERMEAMETERS, Porosity

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Greiner Co Emil
Gurley, W & L E
Ruska Instrument
Scientific Glass
Testing Machines Inc

PETROLEUM TESTING INSTRUMENTS

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Apex Scientific Co
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Braun-Knecht-Heimann
Burrell Corp
Cambridge Instrument
Central Scientific
Coleman Instrument Co
Consol Electrodynamics
Consolidated Systems
Dietert Co
Electric Hotpack
Engis Equipment
Fisher Scientific Co
Foxboro Company
Gardner Lab
Greiner Co Emil
Griebel Co
Hamner Electronics
Instruments Inc
Koehler Instr Co
Kontes Glass Co
Labline Inc
Laboratory Equip Corp
Loe Engrg Co
Millipore Filter Corp
Nurnberg Scientific
Parr Instrument Co
Phoenix Precision Instr
Precision Scientific Co
Research Appliance Co
Ruska Instrument Corp
Scientific Instrument
Soiltest Inc
Technical Oil Tool Corp
Testing Machines Inc
Ultra-Violet Prods
United Engineers Inc
W & W Mfg Co

PHOSPHATE TESTING EQUIPMENT

Lamotte Chemical Prods
Milton Roy Co
Nurnberg Scientific
Nurnberg Thermometer
Taylor & Co W A

PHOTOMETERS, Miscellaneous including Bar, Candle, Flame, Flicker, Neutral Wedge, Sphere, etc (see also Illumination Instruments—Cat 3)

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Biddle Co James G
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Central Scientific
Coleman Instrument
Eldorado Electronics
Epic Inc
Erb & Gray
Ercona Corp
Fisher Scientific
Gardner Lab
Gelman Instrument Co
Golden Instruments
Greiner Co Emil
Instru Development Labs
Instrumentation Assoc
L A B Corp
Leeds & Northrup
Natl Instrument Labs
Nurnberg Scientific
Pfaltz & Bauer
Photo Research Corp
Phoenix Precision Instr
Process & Instruments
Waters Associates
Welch Mfg Co W M
Zeiss Inc Carl
Zenith Optical Lab
Zoomar Inc

PHOTOMETERS, Reflection

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Block Associates
Eldorado Electronics
Engis Equipment
Epic Inc
Erb & Gray
Ercona Corp
Gardner Lab
Gelman Instrument Co
Golden Instruments
Instr Development Labs
Macbeth Corp
Nurnberg Scientific
Pfaltz & Bauer
Phoenix Precision Instr
Welch Mfg Co W M
Zeiss Inc Carl
Zoomar Inc

PHOTOMETERS, Ultraviolet

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Eldorado Electronics
Engis Equipment
Erb & Gray
Erwood Inc
Gardner Lab
Instrumentation Assoc
Jarrell Ash Co
Kruger Instrs Harold
Macbeth Corp
Nurnberg Scientific
Pfaltz & Bauer
Phoenix Precision Instr
Process & Instruments
Spectra Electronics
Welch Mfg Co W M

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Ace Glass Inc
Fisher Scientific Co
Gardner Lab
Natl Instrument Co
Nester Company
Nurnberg Scientific
Schueler & Co
Scientific Glass
Scientific Industries
Sorvall Inc
Will Corporation

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Epic Inc
Erb & Gray
Ercona Corp
Gaertner Scientific
Gardner Lab
Goerz Amer Optical
Greiner Co Emil
Nurnberg Scientific
Phoenix Precision Instr
Process & Instruments
Schuco Scientific
Sunshine Scientific
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Applied Instruments Inc
Bausch & Lomb
Budd Co Inst Div
Edmund Scientific
Engis Equipment
Erb & Gray
Gaertner Scientific Corp
General Radio
Greiner Co Emil
Nurnberg Scientific
Pacific Transducer Corp
Pfaltz & Bauer
Research Vacuum Supply
Schuco Scientific
Sunshine Scientific
Zeiss Inc Carl

POLARIZERS, Light
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Bausch & Lomb
Gaertner Scientific Corp
Greiner Co Emil
Nurnberg Scientific
Tiffen Optical
Zeiss Inc Carl

POLARIZING PLATES
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Bausch & Lomb
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Tiffen Optical

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LaFayette Instr
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Stoelting Co C H

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Electro-Medical Labs
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Med-Tronics Mfg Co
Microchemical Specialties
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Gardner Lab
Gelman Instrument
Hill & Co E Vernon
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Mast Development
Millipore Filter Corp
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National Spectrographic
Nuclear-Chicago
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Nucleonic Corp of Amer
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Precision Scientific Co
Staplex Company
Temperature Engrg Corp
Ultra-Violet Prods
U S Nuclear
W & W Mfg Co

PUMPS, Glass Cylinder and Piston Type
American Meter Co
Baltimore Biological La
Corning Glass
Gardner Lab
Gelman Instrument
Glass Instruments Inc
Greiner Co Emil
Kruger Instrs Harold
Lapp Insulator
Milton Roy Co
Natl Instrument Co
Nuclear-Ohio Inc
Porter Inc Geo K
Precision Glass Products
W & W Mfg Co
Weatherhead Co
Welch Mfg Co W M

PUMPS, Laboratory High Pressure (25000 psig)
American Meter Co
Autoclave Engineers
Coleman Instrument Co
Davies Brothers
Fairbanks-Morse
Gardner Lab
Great Lakes Mfg
Greiner Co Emil
Henderer's Sons
Kontes Glass Co
Lapp Insulator
Milton Roy Co
Pressure Prod Ind
Ruska Instrument Corp
Schueler & Co
Sprague Engineering
Welch Mfg Co W M

PYCONOMETERS
Ace Glass Inc
Beckman/Sci & Porc Div
Coleman Instrument Co
Fisher Scientific Co
Gardner Lab
Glass Instruments Inc
Greiner Co Emil
Houston Instrument
Koehler Instr Co
Labglass Inc
Martin & Co H S
Microchemical Specialties
Nurnberg Scientific
Pyrometer Instr Co

RADIATION PICKUPS, including Bolometers, Thermopiles, etc.
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Barnes Engineering
Empire Devices
Eppley Laboratory
General Microwave Corp
Hughes Aircraft
Infrared Industries
Leeds & Northrup
Mason Instr Co
Nuclear-Chicago
PRD Electronics
RDF Corp
Radiation Electronics
Research Council Inc
Ruge Associates
Servo Corporation
Shaw Instr Corp
Stewart M C
Williamson Development

RADIOACTIVITY DETECTING AND MEASURING EQUIPMENT, including Dosimeters, Radioactive Prospect ng, Scintillation Counters (see also Ionization Chambers)
Allied Research
American Tradair
Applied Physics Corp
Automation Dynamics
BJ Electronics
Baird-Atomic Inc
Bausch & Lomb
Bendix Cincinnati Div
Beva Laboratory
Borg-Warner Controls
Budd Co Inst Div
Cambridge Instrument
Central Scientific
Computer Measurements
Controls For Radiation
Corning Glass
Curtiss Wright
Designs for Tomorrow
Dresser Elx/SIE Div
Eastman Kodak
Eldorado Electronics
Electronics International
Fairbanks-Morse
Federal Mfg & Engrg
Forro Scientific
Franklin Systems
GE Apparatus Sales Div
GE X-Ray Dept
Gelman Instrument
General Microwave Corp
Greiner Co Emil
Hamner Electronics
Heath Co
Henson Co Fred C
Hughes Aircraft
Instrumentation Assoc
Instruments Inc
Klinger Scientific
Land-Air Inc
Landsverk Electrometer
Magnetic Instr Co
Med-Tronics Mfg Co
Millipore Filter Corp
National Radiac
National Standard Elx
Nuclear-Chicago
Nuclear Corp of Amer
Nuclear Dev Lab
Nuclear Elx Corp
Nuclear Materials & Equip
Nuclear Measurements
Nuclear Ohio
Nucleonic Corp of Amer
Pacific Transducer Corp
Packard Instrument Co
Philips Electronics
Picker X-Ray Corp
Radiation Applications
Radiation Counter Labs
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Riggs Nucleonics
Specialty Electronics
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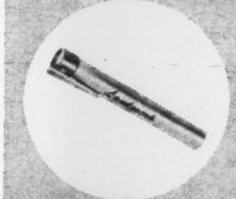
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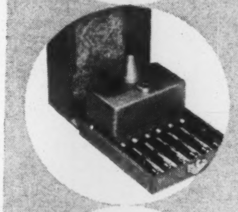
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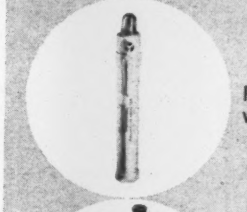
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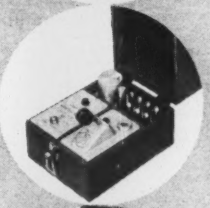
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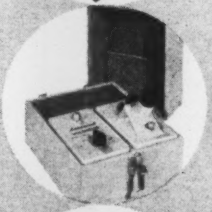
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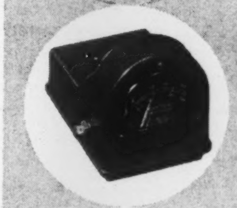
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Hughes Aircraft
Leroy M E Clausing
Librascope Div
Optron Lab
Pacific Universal Prods
Palos Optical Co
Pancro Mirrors Inc
Servo Corporation
Simpson Optical
Sterling Glass Corp
Strong Electric Corp
Tiffen Optical
Unertl Optical Co
United Shoe Machinery
Varo Mfg Co
Wollensak Optical
Zenith Optical Lab

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Bausch & Lomb
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Eastman Kodak
Herron Optical
Leroy M E Clausing
Pacific Universal Prods
Palos Optical Co
Pancro Mirrors Inc
Sterling Glass Corp
Tiffen Optical
Varo Mfg Co
Zenith Optical Lab

REFLECTORS, Special Alloy

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Bausch & Lomb
Edmund Scientific Co
Palos Optical Co
Varo Mfg Co
Zenith Optical Lab

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Bausch & Lomb
Block Associates
Bushnell & Co D P
Colorado Research Corp
Consol Electrodynamics
Davis Instruments
Daystrom/Weston
Engis Equipment
Epic Inc
Erb & Gray
Ercona Corp
Fisher Scientific Co
Gaertner Scientific Corp
Goerz Amer Optical
Greenbrier Instrs
Jarrell Ash Co
Kernco Instruments Co
Manufacturers Engrg
Mine Safety Appliances
Natl Instrument Co
Nurnberg Scientific
Pfaltz & Bauer
Phoenix Precision Instr
Precision Glass Products
Process & Instruments
Sanders Laboratories
Sunshine Scientific
Waters Associates
Zeiss Inc Carl

RHEOSTATS, Laboratory and/or Meter Testing

Ace Electronics Assoc
Allen-Bradley
American Optical Co
Biddle Co James G
Central Scientific
Bourns Inc
Dorsett Electronics Inc
Gardner Lab
General Radio
Greiner Co Emil
Kintronic Div
Leeds & Northrup
Mallory & Co P R
Natl Elec Controller
Nurnberg Scientific
Ohmite Mfg Co
Precision Line Inc
Welch Mfg Co W M

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Bausch & Lomb
Epic Inc
Erb & Gray
Ercona Corp
Griebel Co
Heitz Inc Karl
Ling Electronics
Moeller Instr
Nurnberg Scientific
Pfaltz & Bauer
Sunshine Scientific
Waters Associates

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Atlantic Research
Automation Products
Daystrom/Weston
Dittmore-Freimuth
Foxboro Company
Greiner Co Emil
Hamilton Standard Div
Industrial Instruments
Leeds & Northrup
Moeller Instr
Nurnberg Scientific
Waters Associates

SAMPLERS, Miscellaneous

ARCCO Instrs
Applied Electronics
Bel Art Products
Coleman Instrument Co
Dahl Co G W
Diamond Power Specialty
Fisher Scientific
Gardner Lab
Gast Mfg Corp
Gelman Instrument
Grain Lab Equip
Instr Development Co
Labline Inc
Lapp Insulator
Magnavox Co
Millipore Filter Corp
Nucleonic Corp of Amer
Photomechanisms
Soiltest Inc
Staplex Co
Suttle Equipment Corp
W & W Mfg Co
Waters Associates

SCREENS, X-Ray, Fluoroscopic, including intensifying

GE X-Ray Dept
Land-Air Inc
Picker X-Ray Corp
Tracerlab Inc

SPECIFIC GRAVITY BALANCES

Ace Glass Inc
Automation Products
Burrell Corp
Central Scientific
Exact Weight Scale
Erb & Gray
Federal Pacific
Fisher Scientific Co
Gardner Lab
Gow-Mac Instrument
Greiner Co Emil
Nuclear Materials & Equip
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Warren-Knight Co

CLINOMETERS, Ship
Engis Equipment
Warren-Knight Co

COMPASSES, Aircraft
Bendix Eclipse-Pioneer
Electrospace Corp
Kearfott Div
Kollsman Instr Corp
O M I Corp
Sperry Gyroscope
Sperry Phoenix Co
Star Compass Co
Sterling Instrument Div
U S Gauge Div
Warren-Knight Co

COMPASSES, Azimuth
Garlynn Engrg Co
Hand & Sons Co John E
Kearfott Div
Kollsman Instr Corp
Power Tronic Systems
Sperry Phoenix Co
Sterling Instrument Div
Warren-Knight Co

COMPASSES, Dip
Buff & Buff Mfg
Garlynn Engrg Co
Gurley W & L E
Sterling Instrument Div
Warren-Knight Co

COMPASSES, Gyro
American Bosch Arma
Arma Division
Belock Instrument
Bendix Eclipse-Pioneer
Electrospace Corp
GE Apparatus Sales Div
Kearfott Div
Niagara Frontier Div
Power Tronic Systems
Sperry Gyroscope
Sperry Phoenix
Sperry Peidmont
Sterling Instrument Div

COMPASSES, Magnetic
American Thermo-Ware
Belock Instrument
Berger & Sons C L
Electrospace Corp
Garlynn Engrg Co
Gurley W & L E
Hand & Sons Co John E
Kearfott Div
O M I Corp
Sperry Phoenix
Star Compass Co
Sterling Instrument Div
Taylor Instrument Cos
U S Gauge Div
Waltham Precision Instr
Warren-Knight Co

COMPASSES, Marine
Arma Division
Belock Instrument
Garlynn Engrg Co
Hand & Sons Co John E
Kearfott Div
Power Tronic Systems
Sperry Gyroscope
Sperry Piedmont
Star Compass Co
Sterling Instrument Div

COMPASSES, Radio
Bendix Eclipse-Pioneer
Bendix Radio Div
Kearfott Div
Sperry Gyroscope
Sterling Instrument Div

COUNTERMEASURES SYSTEMS
ACF Electronics
Abacus Inc
Bendix Radio Div
Bogart Mfg
Chesapeake Instrument
Cook Electric Co
Designers for Industry
Dorne and Margolin
Electronic Specialty Co
GE Light Mil Elx Dept
General Electronic Labs
General Microwave Corp
Hrb-Singer Inc
Hughes Aircraft
ITT Federal Labs
Instruments for Industry
Litton Systems
Lockheed Electronics
M-H Military Prods Grp
Martin Company
Nortronics
Orion Electronic Corp
Philco Corp
Radiation Inc
Sanders Associates
Servo Corporation
Space Electronics
Sperry Gyroscope
Sylvania Electronic Sys

DEEP SEA INSTRUMENTS
ACF Electronics
Alden Electronic
Atlantic Research
Colvin Labs
Diamond Power Specialty
Dittmore-Freimuth
Dresser Elx/SIE Div
Electronics International
Fairchild Controls
Felsenthal & Sons
Franklin Systems
GPE Controls
Geotechnical Corp
Hand & Sons Co John E
Hickok Electrical Instr
Hughes Aircraft
Industrial Instruments
Litton Systems
Lookheed Electronics
Orator Chronograph
Philco Corp
Pickard & Burns
Sperry Piedmont
U S Sonics Corp
Wallace & Tiernan
Wiancko Engrg Co

DEPTH INDICATORS, Navigational
ACF Electronics
Alden Electronic
Borg-Warner Controls
Bourns Inc
Bowmar Instrument
Dittmore-Freimuth
Ercona Corp
GPE Controls
Glassco Instr
Hand & Sons Co John E
Hansen Co WM
Heath Co
Hughes Aircraft
Kearfott Div
Librascope Div
Litton Systems
Moeller Instr Co
Philco Corp
Raytheon/Comm Apparatus
Servonic Instruments
Sperry Gyroscope
Sperry Piedmont
Times Facsimile
Trans-Sonics
Uehling Instrument
Ultrasonic Industries
Winston Electronics
U S Sonics Corp

DIRECTION INDICATORS Radio-actuated (see also Aircraft Instruments, also Navigation Aids)
ACF Electronics
Baird-Atomic Inc
Bendix Eclipse-Pioneer
Bendix Montrose Div
Bendix Radio Div
Bowmar Instrument
Control Electronics
Cubic Corp
DaystromWeston
Ercona Corp
Federal Mfg & Engrg
Garlynn Engrg Co
General Communication
General Devices
Giannini Controls Corp
Gulton Industries
Hastings-Raydist
Heath Co
ITT Federal Labs
Kearfott Div
Land-Air Inc
Librascope Div
Litton Systems
M-H Precision Meter Div
Motorola Military Elx
Oster Mfrg John
Philco Corp
Power Tronic Systems
Raytheon/Comm Apparatus
Servo Corporation
Sperry Gryoscope
Sperry Piedmont
Sylvania Electronic Sys
United Shoe Machinery
Vitro Electronics

DRIFT INDICATORS
Bowmar Instrument
Daystrom/Westron
Giannini Controls Corp
Gurley W & L E
Houston-Fearless Corp
Muirhead Instrs Inc
Oster Mfg John
Servomechanism Inc
Sterling Precision
TRG Inc

EARTH CURRENT INDICATORS
Borden Engrg Co
GE Apparatus Sales Div
M-H Boston Div
Milivac Instr Inc
Space Electronics

EARTH RESISTANCE INDICATORS
Associated Research
Biddle Co James G
Borden Engrg Co
Space Electronics
Texas Instruments Inc
Winslow Electronics Inc

FIRE CONTROL INSTRUMENTS, Military and Naval Ordnance
Abacus Inc
Abrams Instrument
Aircraft Armaments
ALFA American Corp
American Bosch Arma
American Electronics Inc
Amer Standard Controls
Arma Division
Autonetics

AIRCRAFT, MARINE, AND MILITARY CONTROL EQUIPMENT AND SYSTEMS—INCLUDING NAVIGATIONAL, METEOROLOGICAL, AND SEISMOLOGICAL INSTRUMENTS, AND ACCESSORIES

Barnes Engineering
Bausch & Lomb
Belock Instrument
Bendix Montrose Div
Budd Lewyt
Buhl Optical Co
Bowmar Instrument
Control Data Corp
Cook Electric Co
Data Tech
Daystrom/Mil Elx
Designers for Industry
Edmund Scientific
Electric Tachometer
Electronic Controls Inc
Electronic Specialty Co
Engis Equipment
Federal Pacific
Felsenthal & Sons
Ford Instr
GE Light Mil Elx Dept
Gaertner Scientific
Garlynn Engrg Co
General Controls
General Mills Inc
Giannini Controls Corp
Gordon Enterprises
Greenleaf Mfg Div
Guardian Electric
Gurley W & L E
Hamilton Watch Co
Haydon Co A W
Hoffman Laboratories Div
Hughes Products
I B M Federal Sys Div
Industrial Control Co
Kearfott Div
Kern Instrs
Keuffel & Esser
Land-Air Inc
Leemath Inc
Librascope Div
Litton Systems
Lockheed Electronics
M-H Military Prods Grp
Mast Development
Maxson Electronics Corp
Milgo Electronic
Monitor Systems Inc
Nortronics
O M I Corp
Oster Mfg John
Pegasus Labs
Philco Corp
Plummer & Kershaw
Power Tronic Systems
RCA Systems Support
Reeves Instr Corp
Sanders Associates
Servo Corporation
Space Electronics
Specialties Inc
Sperry Gyroscope
Sperry Piedmont
Stavid Div
Sterling Precision
Strand Engrg Co
Sylvania Electronic Sys
TRG Inc
Tele-Dynamics Div
Unertl Optical Co
United Control Corp
United Electric Controls
Wiancko Engrg Co
Wollensak Optical
Zenith Optical Lab

FLIGHT TEST INSTRUMENTS

Acromag Inc
Aero Research Instr
Airborne Instr Lab
Applied Electronics
Astromics Div
Automation Dev Corp
B & F Instruments
Bendix Montrose Div
Bendix Pioneer-Central
Brush Instruments Div
Consol Electrodynamics
Consolidated Systems
Convair Instruments
Daystrom Wiancko
Decker Corp
Designers for Industry
Dorne and Margolin
Dynatronics Inc
Electro-Logic Corp
Electronic Controls Inc
Electronics International
Feedback Controls Inc
Felsenthal & Sons
GE Apparatus Sales Div
General Communication
General Devices
General Dynamics/Elect
General Microwave Corp
Giannini Controls Corp
Gordon Enterprises
Guardian Electric
Hickok Electrical Instr
Howell Instrs
Hughes Aircraft
Humphrey Inc
Industrial Control Co
Integrated Dynamics Div
Kearfott Div
Leonard Inc Wallace O
M-H Boston Div
M-H Military Prods Grp
MacLeod Inst Corp
Micro Gee Products
Midwestern Instrs
Model Engrg & Mfg Corp
Nanmac Corp
North Atlantic Indus
Philco Corp
Physical Sciences Corp
Radiation Inc
Rosemount Engrg Co
Scanivalve Co
Sensitive Research Instr
Servonic Instruments
Sierra Research Corp
Specialties Inc
Statham Instruments
Summers Gyroscope
Sylvania Electronic Sys
Telecomputing Corp
Tele-Dynamics Div
Theta Instrument
United Electric Controls
Video Instruments Co
Waugh Engineering Co
Wiancko Engrg Co
Wintronics

GUIDANCE SYSTEMS, Inertial

American Bosch Arma
Baird Atomic
Bendix-Pacific
Electronic Specialty Co
Federal Mfg & Engrg
GLP Division
GE Light Mil Elx Dept
Giannini Controls Corp
Globe Ind
Hughes Aircraft
ITT Federal Labs
Kearfott Div
Litton Systems
M-H Boston Div
M-H Military Prods Grp
Martin Company
Philco Corp
Power Tronic Systems
Reeves Instr Corp
Servo Corporation
Sperry Gyroscope
Sperry Utah Co
Sylvania Electronic Sys
TRG Inc
Vinco Corp
Whittaker Gyro

GUIDANCE SYSTEMS, Infrared

ACF Electronics
Baird Atomic
Barnes Engineering
Bausch & Lomb
Block Associates
Del Electronics
Electronic Specialty Co
GE Heavy Mil Elx Dept
GE Light Mil Elx Dept
Hughes Aircraft
ITT Federal Labs
M-H Military Prods Grp
Martin Company
Philco Corp
Power Tronic Systems
Radiation Electronics
Reeves Instr Corp
Servo Corporation
Space Electronics
Sperry Gyroscope
Sylvania Electronic Sys

GUIDANCE SYSTEMS, Stellar

ACF Electronics
Hughes Aircraft
ITT Federal Labs
Kearfott Div
Kollsman Instr Corp
Litton Systems
M-H Military Prods Grp
MacLeod Inst Corp
Power Tronic Systems
Sperry Gyroscope
Sylvania Electronic Sys
TRG Inc

GYRO STABILIZERS

Allen Business Machines
Arma Division
Bendix Eclipse-Pioneer
Control Technology
Gordon Enterprises
Hughes Aircraft
Humphrey Inc
Kearfott Div
M-H Boston Div
M-H Military Prods Grp
Muirhead Instrs Inc
Philco Corp
Power Tronic Systems
Sperry Gyroscope
Sperry Piedmont
Sterling Precision
U S Time Corp

GYROS AND GYROSCOPES, Vertical and Directional Rate

Aeroflex Corp
Allen Business Machines
American Bosch Arma
Autonetics
Belock Instrument
Bendix Eclipse-Pioneer
Bulova Research
Cedar Engrg Div
Control Data Corp
Decker Corp
Electrospace Corp
Ellison Engineering
Fairchild Controls
Ferranti Electric
Ford Instr
GE Apparatus Sales Div
G E Light Mil Elx Dept
Giannini Controls Corp
Globe Ind
Greenleaf Mfg Div
Gyrex Corp
Hoffman Laboratories Div
Houston-Fearless Corp
Hughes Aircraft
Humphrey Inc
Integrated Dynamics Div
Kearfott Div
Litton Systems
M-H Boston Div
M-H Military Prods Grp
Maxson Electronics Corp
Model Engrg & Mfg Corp
Muirhead Instrs Inc
Niagara Frontier Div
Norden Division
Philco Corp
Power Tronic Systems
Reeves Instr Corp
Sanders Associates
Servo Systems Co
Sperry Gyroscope
Sperry Phoenix Co
Sperry Piedmont
Summers Gyroscope
U S Time Corp
Waltham Precision Instr
Whittaker Gyro

HELIOSTATS

Bendix Pioneer-Central
Gaertner Scientific
Palos Optical Co
Rocky Mountain Instrs

HOOK GAGES

Belfort Instrument
Dwyer Mfg F W
Garlynn Engrg Co
Gurley W & L E
Stocker & Yale Inc

HYDROLOGIC INSTRUMENTS, including Rain Gages

Advanced Instr Corp
Atkins Technical Inc
Belfort Instrument
Bendix Friez Instr
Gurley W & L E
Leupold & Stevens Instr
Sanders Laboratories
Stewart M C

INCLINOMETER TUBES

Bendix Pioneer-Central
Engis Equipment
Instrol Inc
M-H Military Prods Grp
Porter Inc Geo K
Precision Thermometer
Warren-Knight Co

LIGHTHOUSE INSTRUMENTS

Stocker & Yale Inc

MAP MAKING PROJECTORS

Bausch & Lomb
Belfort Instrument
Ercona Corp
Gerber Scientific Instr
Gordon Enterprises
Hughes Aircraft
Librascope Div
Mast Development
Nortronics
O M I Corp
Reed Research Inc
Stocker & Yale Inc

MAP MEASURES

Abacus Inc
American Thermo-Ware
Gerber Scientific Instr
Felsenthal & Sons
Gerber Scientific Instr
Gordon Enterprises
Hamilton Watch Co
Photoplating Co
Reed Research Inc
Space Electronics
Warren-Knight Co

MARINE INSTRUMENTS, including Steering Systems, Logs, etc. (see also Barometers—Cat. 7, also Compasses)

Advanced Instr Corp
Belock Instrument
Bendix-Pacific
Electric Tachometer
Electronic Controls Inc
Felsenthal & Sons
GPE Controls
Hand & Sons Co John E
Litton Systems
Magnetic Instr Co
Moeller Instr
Pegasus Labs
Pickard & Burns
Sanders Associates
Sperry Gyroscope
Sperry Piedmont
Sterling Instrument Div
Warren-Knight Co
Westinghouse Air Brake
Wheeler Mfg Co C H

METEROLOGICAL INSTRUMENTS, including Wind Velocity, Wind direction, etc.

Advanced Instr Corp
Airtronics Inc
Alden Electronic
Askania-Werke
Atkins Technical Inc
Automation Dynamics
Barnes Engineering
Beckman & Whitley
Belfort Instrument
Bendix-Friez Instr
Block Associates
Cook Electric Co
Cooper Development
Daystrom/Mil Elx
Di/An Controls
Dittmore-Freimuth
Dwyer Mfg Co
Dynamics Research
Epic Inc
Exactel Instrument
Felsenthal & Sons
General Devices
Geotechnical Corp
Gurley W & L E
Hass Instr Corp
Hastings-Raydist
Hill & Co E Vernon
Illinois Testing Labs
Instr Development Co
Kern Instrs
Leupold & Stevens Instr
Lockheed Electronics
Mast Development
Model Engrg & Mfg Corp
Pioneer Magnetics
Sanders Laboratories
Servo Corporation
Specialty Electronics
Spectra Electronics
Stewart M C
Tapco Group
Tele-Dynamics Div
Texas Instruments Inc
United Electrodynamics
Victory Engineering
Wallace & Tiernan
Weksler Instruments
Westberg Mfg
Westronics Inc
Williamson Development

NAVIGATION AIDS, Aircraft, including Loran, Ranges, Shoran, etc. (see also Compasses, also Radar, also Radiosondes)

ACF Electronics
Airesearch Mfg Co
Alford Mfg
Automation Dynamics
Baird-Atomic Inc
Bendix Eclipse Pioneer
Bendix-Pacific
Bendix Radio Div
Collins Radio
Cubic Corp
Daystrom/Mil Elx
Designers for Industry
Dynatronics Inc
Federal Pacific
Felsenthal & Sons
GPL Division
General Communication
General Microwave Corp
General Mills Inc
General Railway Signal
Hand & Sons Co John E
Hastings-Raydist Inc
Haydon Instr Co
Hoffman Laboratories Div
Hughes Aircraft
ITT Federal Labs
Kearfott Div
Kemlite Labs

CM8-680 — famed for long life...now specified for military equipment!

Computations, based on accelerated life tests, indicate that this lamp will burn for 1,000,000,000 years! Unfortunately none of us will be around to prove it! However, we do know that the CM8-680 series lamps that were originated in our laboratories, are widely recognized for their unfailing reliability and exceptionally long life.

Because of these qualities, the CM8-680 series is now specified for military use (MS24367 and MS24515). The Chicago Miniature Lamp Works is the prime source for this type of lamp.

Suppliers to military services, producing equipment that incorporates ultra-miniature lamps, can be sure of compliance to specifications by ordering these lamps by these MS numbers.

ULTRA-MINIATURE LAMPS
MILITARY STANDARDS NUMBERS

●

Midget Flange Base

MS-24515-682	MS-24515-682AS-15
MS-24515-685	MS-24515-685AS-15
MS-24515-714	MS-24515-714AS-15
MS-24515-718	MS-24515-718AS-15

Unbased—Wire Terminals

MS-24367-680	MS-24367-680AS-15
MS-24367-683	MS-24367-683AS-15
MS-24367-713	MS-24367-713AS-15
MS-24367-715	MS-24367-715AS-15

●

Note: Chicago Miniature's lamps are preceded by prefix CM8, e.g., MS-24367-715AS-15 is Chicago Miniature's CM8-715AS-15.

For complete specifications on these and other ultra-miniature lamps—

WRITE FOR BULLETIN 1106-R

CHICAGO MINIATURE LAMP WORKS

1553 No. Ogden Avenue, Chicago 10, Illinois

CIRCLE 238 ON READER-SERVICE CARD

OCEANOGRAPHIC INSTRUMENTATION

- Salinometers and conductivity meters
- Conventional electrode systems
- Induction conductivity systems
- Instrumentation for in situ measurements
- Provision for temperature measurement and compensation

Write for complete catalog

Industrial Instruments Inc.
89 Commerce Road Cedar Grove Essex County N J

CIRCLE 239 ON READER-SERVICE CARD

Laboratory for Electronics
Land-Air Inc
Lavoie Labs
Lockheed Electronics
Loral Electronics
M-H Military Prods Grp
Maxson Electronics Corp
Motorola C and E
Motorola Military Elx
Norden Division
O M I Corp
Orion Electronic Corp
Philco Corp
Pickard & Burns
Power Tronic Systems
RCA Defense Electronic
Raytheon Aero/Weapons
Raytheon/Equipt Div
Raytheon/Govt Mktg Div
Reflectone Electronics
Seiscor Div
Seismograph Service
Servo Corporation
Servomechanism Inc
Sierra Research Corp
Simmonds Precision Prod
Space Electronics
Sperry Gyroscope
Sylvania Electronic Sys
TRG Inc
Turbo Machine Co
United Shoe Machinery
Virginia Electronics

NAVIGATION AIDS, Marine, including Loran, Shoran, etc. (see also Compasses, also Radar, also Radiosondes)

ACF Electronics
Airborne Instr Lab
Amglo Corp
Bendix-Pacific
Cubic Corp
Daystrom/Mil Elx
Designers for Industry
Dynatronics Inc
Felsenthal & Sons
General Communication
General Microwave Corp
General Railway Signal
Hand & Sons Co John E
Harris A S W Div
Hastings-Raydist Inc
Heath Co
Hughes Aircraft
ITT Federal Labs
Kemlite Labs
Land-Air Inc
Lavoie Labs
Litton Systems
Lockheed Electronics
Loral Electronics
M-H Military Prods Grp
Motorola C and E
Motorola Military Elx
Philco Corp
Pickard & Burns
Polarad Electronics Corp
Power Tronic Systems
RCA Defense Electronic
Raytheon/Comm Apparatus
Raytheon/Govt Mktg Div
Seiscor Div
Sierra Research Corp
Simmonds Precision Prod
Sperry Gyroscope
Sperry Piedmont
Stewart-Warner Corp
Sylvania Electronic Sys
TRG Inc
United Shoe Machinery
Virginia Electronics
Wallace & Tiernan
Waterman Products

NAVIGATIONAL INSTRUMENTS, including Octants, Sextants (see also Compasses)

Baird-Atomic Inc
Belock Instrument
Collins Radio
Data Tech
Diffraction Limited
Felsenthal & Sons
Gerber Scientific Inst
Hand & Sons Co John E
Kollsman Instr Corp
Librascope Div
Power Tronic Systems
Sperry Gyroscope
Sperry Phoenix Co
Warren-Knight Co

OCEANOGRAPHIC INSTRUMENTS AND EQUIPMENT

ACF Electronics
Advanced Instr Corp
Airpax Electronics
Alden Electronic
Askania-Werke
Atlantic Research
Barnes Engineering
Concord Control Inc
Diamond Power Specialty
Dynatronics Inc
Edgerton Germeshausen
Franklin Systems
Geotechnical Corp
Gulton Industries Inc
HRB-Singer Inc
Harris A S W Div
Hastings-Raydist
Haydon Instr Co
Hughes Aircraft
Industrial Instruments
Leupold & Stevens Instr
Litton Systems
Lockheed Electronics
Oylmpic Instr
Pacific Electro Magnetic
Sperry Piedmont
Stavid Div
Tele-Dynamics Div
Telemetering Corp
Thermo Electric Co
U S Sonics Corp
W & W Mfg Co
Wallace & Tiernan

ORDANCE INSTRUMENTS, including Ballistics

Alfa-American Corp
Arma Division
Askania-Werke
Avco Corp
Berger & Sons C L
Designers for Industry
Electro-Mechanical Res
Federal Mfg & Engrg
Ford Instr
Garlynn Engrg Co
General Mills Inc
Gordon Enterprises
Hamilton Watch Co
Haydon Instr Co
Henson Co Fred C
Integrated Dynamics Div
Interelectronics
Kern Instrs
Keuffel & Esser
Kollsman Instr Corp
Lockheed Electronics
M-H Military Prods Grp
Nanmac Corp
Nortronics
O M I Corp
Palos Optical Co
Penn Optical & Instr
Philco Corp
Resdel Engineering
Sperry Gyroscope
Unertl Optical Co
United Electric Controls
Varo Mfg Co
Waltham Precision Instr
Wiancko Engrg Co
Wollensak Optical

PELORUSES

Garlynn Engrg Co
Hand & Sons Co John E
Zenith Optical Lab

PERISCOPES, Military and Naval

Baird-Atomic Inc
Bausch & Lomb
Berger & Sons C L
Buhl Optical Co
Curtiss Labs
Diffraction Limited
Edmund Scientific
Gordon Enterprises
Jones Optical A D
Keuffel & Esser
Kollsman Instr Corp
Lenox Instrument Co
Lerma Engrg Corp
Librascope Div
M-H Military Prods Grp
Penn Optical & Instr
Perkin-Elmer Corp
Sperry Gyroscope
Sperry Piedmont
Unertl Optical Co
Varo Mfg Co
Wollensak Optical
Zenith Optical Lab
Zoomar Inc

PHOTOGRAMMETRIC INSTRUMENTS

Abrams Instrument
Aeroflex Corp
Bausch & Lomb
Belfort Instrument
CBS Laboratories
Concord Control Inc
Ercona Corp
Fairchild Camera & Instr
Federal Mfg & Engrg
Felsenthal & Sons
Gaertner Scientific Corp
Garlynn Engrg Co
Goerz Amer Optical
Gordon Enterprises
Henson Co Fred C
Kern Instrs
Kollsman Instr Corp
Lafayette Instr
Librascope Div
Mann Co David W
Mast Development
Nortronics
O M I Corp
Parabam Division
Perkin-Elmer Corp
Photoplating Co
Reed Research Inc
Vanguard Instrument

RADAR

Airborne Instr Lab
American Tradair
Andersen Labs
Autonetics
Bendix Radio Div
Bendix York Div
Bogart Mfg
Budd Lewyt
Brooks & Perkins
Control Electronics
Curtiss-Wright
Daystrom/Mil Elx
Designers for Industry
Diamond Antenna
Electronic Specialty Co
GPL Division
General Microwave Corp
General Mills Inc
Gorham Mfg Co
Hoffman Laboratories Div
Houston-Fearless Corp
ITT Federal Labs
Intercontinental Elx
Lavoie Labs
Litton Systems
Lockheed Electronics
Maxson Electronics Corp
Microwave Associates
Motorola Military Elx
Newton Co
Packard Bell
Palos Optical Co
Philco Corp
Pickard & Burns
Polarad Electronics Corp
RCA Defense Electronic
R S Electronics Corp
Raytheon/Comm Apparatus
Raytheon/Govt Mktg Div
Reeves Instr Corp
Reisner Mfg Co W H
Resdel Engineering
Sierra Research Corp
Space Electronics
Sperry Gyroscope
Sperry Microwave
Sperry Phoenix
Sperry Piedmont
Stavid Div
Strand Engrg Co
Trak Electronics
Sylvania Electronic Sys
TRG Inc
United Shoe Machinery

RADIO BEACON SYNCHRONIZING CONTROLLERS

Airborne Instr Lab
Control Electronics
Cooper Development
Designers for Industry
Federal Mfg & Engrg
G E Light Mil Elx Dept
General Communication
Hughes Aircraft
Land-Air Inc
Loral Electronics
Maxson Electronics Corp
Milro Controls
United Control Systems

RADIOSONDES (see also Navigation Aids)

ACF Electronics
Automation Dynamics
Bendix-Friez Instr
Cooper Development
Dittmore-Freimuth
Dynatronics Inc
General Mills Inc
Lockheed Electronics
Motorola Military Elx
Philco Corp
R S Electronics Corp
Sierra Research Corp
Sylvania Electronic Sys
TRG Inc
Tapco Group
Tele-Dynamics Div
Telechrome Mfg Corp
Telectro Industries
United Shoe Machinery
Vector Mfg Co

RANGE FINDING INSTRUMENTS (see also Ordnance Instruments)

Askania-Werke
Bausch & Lomb
Berger & Sons C L
Bowmar Instrument
Buff & Buff Mfg
ITT Federal Labs
Keuffel & Esser
Land-Air Inc
Librascope Div
Litton Systems
Motorola Military Elx
Buhl Optical Co
Cubic Corp
Daystrom/Mil Elx
Designers for Industry
Ercona Corp
Felsenthal & Sons
General Communica'ion
Gordon Enterprises
Hughes Aircraft
Nortronics
O M I Corp
Penn Optical & Instr
Philco Corp
Philips Electronic
Pratt & Whitney Co
Resdel Engineering
Servo Corporation
Sierra Research Corp
Space Electronics
Spectra Electronics
Sperry Gyroscope
Sperry Piedmont
Sylvania Electronic Sys
United Shoe Machinery

SEISMOLOGICAL INSTRUMENTS, including Seismographs

Abacus Inc
Alden Electronic
Askania-Werke
Atlantic Research
Dresser Elx/SIE Div
Electrodynamic Instr
Geotechnical Corp
Midwestern Instr
Seiscor Div
Seismograph Service
Servo-Tek Prods
Space Electronics
Sprengnether Instr
Technical Products Co
Texas Instruments Inc
United Electrodynamics

SIGHTS, Gun, Telescopic

Bausch & Lomb
Berger & Sons C L
Buhl Optical Co
Bushnell Co D P
GE Light Mil Elx Dept
Gordon Enterprises
Keuffel & Esser
Kollsman Instr Corp
Mast Development
Nortronics
Sperry Gyroscope
Unertl Optical Co
Wollensak Optical

SIMULATORS, FLIGHT including Flight Tables

ACF Electronics
Aircraft Armaments
Amer Meas & Control
Bendix Computer Div
Calif Technical Indus
Carmody Corp
Curtiss-Wright
Daystrom/Mil Elx
ITT Federal Labs
Link Div
Mast Development
Micro Gee Products
Motorola Military Elx
Newton Co
Orion Electronic Corp
Pegasus Labs
Philco Corp
Pickard & Burns
Power Tronic Systems
Radiation Inc
Sylvania Electronic Sys
Tapco Group

SOUNDING MACHINES AND LEADS

Hand & Sons Co John E
Moeller Instr Co
Philco Corp
Power Tronic Systems

SOUNDING TUBES

Hand & Sons Co John E
Moeller Instr

SUNSHINE INDICATORS and/or Recorders

Beckman & Whitley
Bush Associates G F
Eppley Laboratory
Photobell
Stewart M C
Virginia Electronics

TELEMETERS, Surveying and Military, Optical

Applied Electronics
Baird Atomic
Designers for Industry
Dorsett Electronics Labs
Dynatronics Inc
Elx Prod & Dev
General Devices
General Electronic Labs
Geotechnical Corp
Hallamore Electronics
Haydon Co A W
Kauke and Co Inc
Keuffel & Esser
Kollsman Instr Corp
Lerma Engrg Corp
Monitor Systems Inc
Motorola Military Elx
Mycalex Corp of Amer
Sierra Research Corp
Solid State Electronics
Space Electronics
Sperry Utah Co
Sylvania Electronic Sys
Technology Instr (Mass)
Telemetering Corp
United Electrodynamics
Varo Mfg Co
Vector Mfg Co
Waltham Electronics
Warren-Knight Co

TELESCOPES, Astronomical

American Thermo-Ware
Askania-Werke
Bushnell Co D P
Coast Instrument
Diffraction Limited
E & W Optical
Edmund Scientific
Engis Equipment
Ercona Corp
Gordon Enterprises
Herron Optical
Keuffel & Esser
Leroy M E Clausing
Optron Lab
Palos Optical Co
Penn Optical & Instr
Perkin-Elmer Corp
Tinsley Labs
Unertl Optical Co
Unitron Instrument Co

TELESCOPES, Azimuth and/or Zenith

American Thermo-Ware
Askania-Werke
Bausch & Lomb
Berger & Sons C L
Bushnell & Co D P
Coast Instrument
E & W Optical
Edmund Scientific
Ercona Corp
Gordon Enterprises
Herron Optical
Keuffel & Esser
Kollsman Instr Corp
Penn Optical & Instr
Perkin-Elmer Corp
Tinsley Labs
Unertl Optical Co
Wollensak Optical

TELESCOPES, Reflection and/or Refracting

Askania-Werke
Bausch & Lomb
Buff & Buff Mfg
Bushnell & Co D P
Coast Instrument
E & W Optical
Edmund Scientific
Engis Equipment
Ercona Corp
Gaertner Scientific Corp
Gordon Enterprises
Herron Optical
Keuffel & Esser
Lerma Engrg Corp
Leroy M E Clausing
Nortronics
Optron Lab
Palos Optical Co
Penn Optical & Instr
Perkin-Elmer Corp
Tinsley Labs
Unertl Optical Co
Unitron Instrument Co
Wollensak Optical
Zoomar Inc

THEODOLITES, Magnetic

Askania-Werke
Gordon Enterprises
Gurley W & L E
Kern Instrs
Keuffel & Esser
Librascope Div
Ruska Instrument Corp
Warren-Knight Co

THEODOLITES, Pilot Balloon

Askania-Werke
Berger & Sons C L
Engis Equipment
Ercona Corp
Gordon Enterprises
Gurley W & L E
Kern Instrs
Keuffel & Esser
Librascope Div
Servo Corporation

WIND TUNNEL INSTRUMENTS

Advanced Dynamics
Aero Research Instr
American Electronics Inc
Automatic Timing & Contls
Automation Dev Corp
Avco Corp
B and F Instruments
Baldwin-Lima-Hamilton
Beckman Systems Div
Boonshaft and Fuchs
Bytrex Corp
Chadwick-Helmuth
CompuDyne Corp
Conoflow
Consol Electrodynamics
Consolidated Systems
Cook Electric Co
Curtiss-Wright IMI
Datex Corp
Dwyer Mfg F W
Dynametrics Corp
E & W Optical
Electro Instruments
Electro-Logic Corp
Electro-Mechanical Res
Engis Equipment
Exactel Instrument
Fischer & Porter Co
Flow Corporation
GPE Controls
Gaertner Scientific Corp
General Controls
General Devices
Giannini Controls Corp
Gilmore Industries
Gulton Industries Inc
Hagan Chem & Controls
Hass Instr Corp
Hastings-Raydist
High Temperature Instrs
Hill & Co E Vernon
Illinois Testing Labs
Kistler Instrument Corp
Leeds & Northrup
Lessells & Asso Inc
Monitor Systems Inc
Nanmac Corp
Pacific Scientific
Palos Optical Co
Propulsion Dev Labs
Rosemount Engrg Co
Ruge Associates
Sanders Associates
Scanivalve Co
Shapiro & Edwards
Specialties Inc
Statham Instruments
Tapeswitch Corp
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Tinsley Labs
Trimount Instrument Div
Unertl Optical Co
United Sensor & Control
Universal Dynamics
Westberg Mfg Co
Westronics Inc
Wiancko Engrg Co
Zeiss Inc Carl

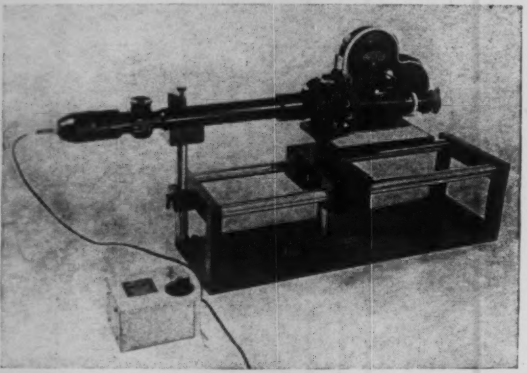
When Using This Guide
look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

Physical Properties Test Equipment

1962 BUYERS' GUIDE

6

**INSTRUMENTS AND EQUIPMENT FOR
QUALITY CONTROL, AND PRODUCTION
TESTING, GAGING, AND INSPECTION OF
PRODUCT AND MATERIALS**



The R-2 Reflex Autocollimator is a precision instrument designed for the testing and checking of photographic optics. It has the advantage that the quality of the image formed by a camera lens can be observed under high magnification directly on the film in the camera. The film can be stationary or in motion. In motion picture cameras this makes possible the immediate observation of the quality of the image formed on running film.

The test pattern has been designed to enable the user of the Autocollimator to judge the quality of the image returned from the camera optical system. The Autocollimator permits tests for the following:

1—Focal plane determination: whether the lens focuses on the film or the ground glass in a camera. (This is the basic use for which the Autocollimator was designed. It will determine the focal plane to an accuracy of 1/5000 of the focal length of the lens being tested, even in the hands of an inexperienced user. With experience, the user can work to closer limits.) 2—Quality of the camera lens. 3—Visual resolution. 4—Photographic resolution. 5—Astigmatism. 6—Chromatic correction. 7—Spherical correction. 8—Flatness of field. 9—Coma. 10—Contrast. 11—Optimum aperture. 12—Adjustment of lens on camera. 13—Squareness of lens with optical axis. 14—Quality of glass filters: Flatness, finish and parallelism of surfaces.

RICHTER CINE EQUIPMENT

S. RIDGE ROAD **ESSEX, NEW YORK**

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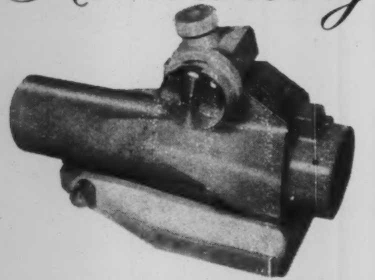
Announcing – *The Development of a Remarkable Autocollimator*



- **DIRECT READING** — ½ second of arc
- **SENSITIVITY** (Repeat Reading) — Better than ¼ second of arc

Human Engineering was a prime factor in the design of the Coordinate Autocollimator, D-638. Even after prolonged usage, physical strain and eye fatigue are practically non-existent due to these outstanding features:

COMPACTNESS — Being only 12½" in length permits the operator to make mirror adjustments while observing the alignment in the eyepiece.

TILTED EYEPIECE — To give the operator the most comfort, the eyepiece has been tilted back from vertical. This relieves him of any awkwardness or strain that may affect the alignment setting.

SIMPLICITY OF ALIGNMENT — Alignment is simplified through a simple annular ring reticle that is illuminated on a dark field. The filar reticle, coupled to the micrometer drum, bisects the center of the illuminated reticle upon reaching alignment. This configuration was incorporated to speed alignment and lessen eye fatigue.

EASE OF READING — Both minutes and seconds are read from the drum adjacent to the eyepiece. This feature is an improvement on the method of obtaining minute readings through the eyepiece and second readings from an external drum.

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CIRCLE 241 ON READER-SERVICE CARD

ABRASION MACHINES AND TESTERS

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Custom Scientific Instrs
Engis Equipment
Hacker & Co
Hirschmann Co Carl
Peschel Electronics
Scott Testers Inc
Sel-Rex Corp
Soiltest Inc
Taber Instrument
Testing Machines Inc
Tinius Olsen Testing
White Dental Mfg

ADHESION TESTERS, including Glue Testers

Amthor Testing
Custom Scientific Instrs
Dillon & Co W C
Electric Hotpack
Hunter Spring Co
Scott Testers Inc
Testing Machines Inc

ACCELERATORS, Linear and Rotat.onal

Associated Testing Labs
Custom Scientific Instrs
GE X-Ray Dept
Genisco Inc
Gyrex Corp
Hamilton Standard Div
High Voltage Engrg
Hughes Aircraft
Humphrey Inc
Land-Air Inc
M-H Military Prods Grp
P S I Laboratory
Pacific Scientific
Princeton Div
Radiation Research Corp
Rucker Co
Schaevitz Engineering
United Aero Prod

ASPHALT TESTING APPARATUS, including Penetration Needles

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Atlas Electric Devices
Automation Products
Brabender Instr C W
Chatillon John
Electric Hotpack
Greiner Co Emil
Hallikainen Instrs
Koehler Instr Co
Labline Inc
Marshall Instrs
National Appliance Co
Soiltest Inc
Temperature Engrg Corp
Tinius Olsen Testing

AUTO-COLLIMATORS

Alfa-American Corp
Barnes Engineering
Berger & Sons C L
Davidson Optronics
Engis Equipment
Ercona Corp
Gaertner Scientific Corp
Garlynn Engrg Co
Gordon Enterprises
Keuffel & Esser
Kollsman Instr Corp
Opto-Metric Tools
Palos Optical Co
Penn Optical & Instr
Scherr-Tumico
Tinsley Labs
Unertl Optical Co
Zeiss Inc Carl

BALANCING MACHINES, Dynamic

Annis Co R B
Bear Mfg Co
Cosa Corp
Decker Corp
Electro-Autosizing
Gilmore Industries
Gisholt Machine
Hickok Electrical Instr
Hirschmann Co Carl
Micro Balancing Inc
Pratt & Whitney Co
Raydyne Corp
Tinius Olsen Testing

BALANCING MACHINES, Static

Annis Co R B
Bear Mfg Co
Cosa Corp
Decker Corp
Dynametrics Corp
Electro-Autosizing
Exact Weight Scale
Gelber & Sons
Gilmore Industries
Gisholt Machine
Hadley Inc H A
Hirschmann Co Carl
Pratt & Whitney Co
Raydyne Corp
Tinius Olsen Testing

BEARING TESTERS, including Bearing Testing Machines

Barden Corp
Bearing Inspection Inc
Brabender Instr C W
Cleveland Instr
Electro-Autosizing
Hirschmann Co Carl
Koehler Instr Co
Lebow Associates Inc
Magnaflux Corp
Micrometrical Mfg Co
New Departure Div
Pratt & Whitney
Sheffield Corp
Sunshine Scientific
Tenney Engineering

BOILING POINT, VAPOR PRESSURE ANALYZERS

Hallikainen Insts
Technical Oil Tool Corp

BRAKE TESTING INSTRUMENTS

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Cosa Corp
Epic Inc
Gilmore Industries
Greer Hydraulics Inc
Oxford Engrg Co

BURSTING TESTING MACHINES, including Mullen Testers

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Crosby-Ashton
Hirschmann Co Carl
Kahn & Co
Perkins & Son
Scott Testers Inc
Sprague Engineering
Sunshine Scientific
Tenney Engineering
Testing Machines Inc

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Astral Electronics
Automation Dynamics
Baldwin-Lima-Hamilton
Bay-Tronic Co
Borden Engrg Co
Bracke-Seib X-Ray
Budd Co Inst Div
Concord Control Inc
Custom Scientific Instrs
Davenport Mfg
Daystrom/Weston
Designers for Industry
Dice Co J W
Dillon & Co W C
Epic Inc
Erdco Enigneering
General Radio
Haydon Co A W (Calif)
Hirschmann Co Carl
Industrial Instruments
Instrument Labs
Lavoie Labs
Leeds & Northrup
Leemath Inc
Mefco Sales & Service
Metrol Inc
Micro Balancing Inc
Muirhead Instr
Multi-Amp Electronic
National Standard Elx
Optimized Devices
Pacific Scientific
Peschel Electronics
Precision Apparatus Co
Projects Unlimited
Pyramid Instr Corp
Radio Frequency Labs
Ram Meter Inc
Raytheon/Comm Apparatus
Riehle Testing
Rodale Electronics
Slaughter Co
Sunshine Scientific
Tinius Olsen Testing
WacLine Inc
Welch Electric
Wickes Engrg & Constr
Wiedemann Machine
Winslow Company Inc

CALIPER RULES

Alina Corp
Dixon Inc William
Greiner Co Emil
Lufkin Rule Co
Renick Co L C
Scherr-Tumico
Starrett Co L S

CAMERA SHUTTER TESTERS

Aerotronic Assoc
Gordon Enterprises
Mason Instr Co
Mast Development
Stocker & Yale
Sunshine Scientific

CEMENT MOLDS

Greiner Co Emil
Soiltest Inc

CEMENT NEEDLE APPARATUS

Custom Scientific Instrs
Greiner Co Emil
Soiltest Inc

CHAIN TESTING MACHINES

Budd Co Inst Div
Cosa Corp
Dillon & Co W C
Hisrchmann Co Carl
Riehle Testing
Scott Testers Inc
Tinius Olsen Testing
Wiedemann Machine

CHART GAGES for Optical Comparators

Automation Gages
Engis Equipment
Gordon Enterprises
Gurley W & L E
Jones & Lamson Machine
Opto-Metric Tools
Palos Optical Co
Renick Co L C
Scherr-Tumico
Stocker & Yale Inc

CONCRETE AND CEMENT TEST APPARATUS

Blue M Electric
Brabender Instr C W
Budd Co Inst Div
Central Scientific
Conrad Inc
Coulter Indus Sales
Custom Scientific Instrs
Dillon & Co W C
Electric Hotpack
Electro Products Labs
Greiner Co Emil
Hirschmann Co Carl
Labline Inc
Micro-Test Inc
Riehle Testing
Soiltest Inc
Tenney Engineering
Tinius Olsen Testing
Wiedemann Machine

DAMPING TESTING EQUIPMENT and INSTRUMENTS (see also Impact)

B and K Instruments
Chadwick-Helmuth
Electric Hotpack
Geotechnical Corp
Hacker & Co
Hirschmann Co Carl
Magnaflux Corp
MB Electronics
Pegasus Labs
Wiedemann Machine

DEFORMETERS

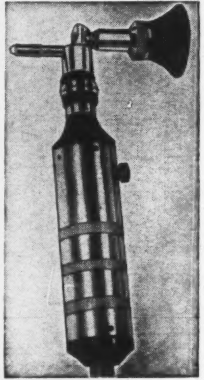
Korfund Co

DETONATION INDICATORS

Kistler Instrument Corp

DIMENSIONAL GAGES, Electronic, including Comparators, Micrometers

Acme Scientific Co
Alina Corp
Arizona Tool & Die
Automation Gages
Bently Scientific
Branson Instruments



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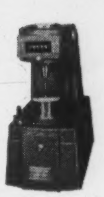
Dyna-Empire Inc
Electro-Autosizing
Electro Products Labs
Electronic Control
Engis Equipment
Federal Products Corp
Fielden Electronics
Hamilton Watch Co
Hydel Inc
Image Instruments
Indikon Inc
Keuffel & Esser
Link Div
Lufkin Rule Co
Magnaflux Corp
Mahr Gauge Co
Merz Engrg Inc
Metrol Inc
Micrometrical Mfg Co
National Standard Elx
Nuclear Elx Corp
Photobell Co
Photocon Research
Physical Sciences Corp
Poole Instruments
Pratt & Whitney Co
Princeton Div
RCA Industrial Elx
Ram Meter Inc
Ramapo Instrument
Ramsey Engrg Co
Sanborn Company
Scherr-Tumico
Security Controls Inc
Sheffield Corp
Size Control Co
Taft-Pierce Mfg
Taper Micrometer Corp
Techni-Rite Elx
United Aero Prod
Warner & Swasey Co

DIMENSIONAL GAGES, Mechanical, including Adjustable Length, Bore, Caliper, Center, Coating Thickness, Concentricity, Cylinder, Dial, Drill Grinding, End Measure, Foot Blocks, Gage Blocks, Height, Linear Depth, Micrometer, Pipe, Piston Ring, Pitch Diameter, Plug, Profile, Radius, Taper, Thickness, etc.

Acme Scientific Co
Alina Corp
Arizona Tool & Die
Askania-Werke
Bearing Inspection Inc
Brown & Sharpe Mfg Co
Chicago Dial Indicator
Decker Corp
Deltronic Corp
Dixon Inc William
Dyna-Empire Inc
Electro-Autosizing
Engis Equipment
Ercona Corp
Exactel Instrument
Federal Products Corp
Fonda Gage Co
GE X-Ray Dept
Hamilton Watch Co
Hommel Co O
Linear Controls
Lufkin Rule Co
Mahr Gauge Co
Micrometrical Mfg Co
Muirhead Instrs
Opto-Metric Tools
Palos Optical Co
Pratt & Whitney
Scherr-Tumico
Sheffield Corp
Size Control Co
Slocomb Co J T
Soiltest Inc
Standard Gage Co
Starrett Co L S
Stocker & Yale Inc
Sunnen Service
Taft-Peirce Mfg
Taper Micrometer Corp
Techni-Rite Elx
Testing Machines Inc
Tracerlab-Keleket
Vinco Corp
Warner & Swasey Co
Zeiss Inc Carl

DIMENSIONAL GAGES, Optical including Comparators, Interferometers, Micrometers, Projectors, Telescopic

Acme Industrial Co
Acme Scientific Co
Alina Corp
Allen Avionics Inc
Arizona Tool & Die
Askania-Werke
Automation Gages
Bausch & Lomb
Bently Scientific
Berger & Sons C L
Custom Scientific Instrs
Engis Equipment
Ercona Corp
Federal Mfg & Engrg
Finescale Co
Gaertner Scientific Corp
Gordon Enterprises
Hacker & Co
Hydel Inc
Image Instruments
Jones & Lamson Machine
Keuffel & Esser



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Direct measurement of thickness to *10 millionths.* Your choice of zero measuring pressure or adjustable standard reference measuring pressures. Ideal for measuring fragile or compressible materials or parts. Hand operated and automatic motor driven models available.

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METAL DETECTORS

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Measures electrical resistances as low as 1 Microhm (.000001 ohms). Portable, 5 range instrument for field or shop use. 2% accuracy. Self-contained power supply. Measures contact resistance in large circuit breakers without disassembly. Quality control of small electrical assemblies and for inspection of incoming raw materials. Basic instrument for checking "cleanliness" of aluminum prior to spot welding.

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Pratt & Whitney Co
Scherr-Tumico
Sheffield Corp
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Slocomb Co J T
Stocker & Yale Inc
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Unitron Instrument
Vinco Corp
Zeiss Inc Carl

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Bearing Inspection Inc
Engis Equipment
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Electro-Autosizing
Federal Products Corp
Gurley W & L E
Lufkin Rule Co
National Standard Elx
Olympic Instrs Inc
Pratt & Whitney Co
Ram Meter Inc
Stocker & Yale
Warren-Knight Co

DIMENSIONAL GAGES, Surface Finish

Alina Corp
Bently Scientific
Cleveland Instr
Dyna-Empire Inc
Engis Equipment
Ercona Corp
Gar Precision Parts
Gits Bros Mfg
Lufkin Rule Co
Micrometrical Mfg Co
Opto-Metric Tools
Palos Optical Co
Pratt & Whitney Co
Scherr-Tumico
Standard Gage Co
Stocker & Yale Inc
Sunshine Scientific
Surface Checking Gage
Taper Micrometer Corp
Techni-Rite Elx
Tracerlab-Keleket
Unit Process Assemblies
United Aero Prod
Zeiss Inc Carl

DIVIDING HEADS, Optical

Alina Corp
Buff & Buff Mfg
Cosa Corp
Custom Scientific Instrs
Engis Equipment
Ercona Corp
Gertsch Products Inc
Gurley W & L E
Keuffel & Esser
Millitest Corp
Opto-Metric Tools
Parker-Hartford Corp
Pratt & Whitney
Scherr-Tumico
Stocker & Yale
Theta Instrument
Vinco Corp
Zeiss Inc Carl

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Bytrex Corporation
Chadwick-Helmuth
Consolidated Airborne
Convair Instruments
Cox Instruments
Datex Corp
Detroit Controls
DuMont Labs Allen B
Dynapar Corp
Eastern Specialty Co
Epic Inc
Hamilton Standard Div
Heath Co
Illinois Testing Labs
Kistler Instrument Corp
Land-Air Inc
M-H Aeronautical Div
Nanmac Corp
Norwood Controls
Photocon Research
Potter Aeronautical
Ranarex Div
Schauer Mfg Corp
Sierra Research Corp
Simpson Electric
Statham Instruments
United Aircraft Prods
United Electric Control
U S Gauge Div
Weksler Instruments
Westronics Inc
Winslow Company Inc

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Budd Co Inst Div
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Crescent Engrg & Res
Epic Inc
Gaertner Scientific Corp
Geotechnical Corp
Hallikainen Insts
Korfund Co
Physical Sciences Corp
Riehle Testing
Soiltest Inc
Testing Machines Inc
Tinius Olsen Testing
Wiedemann Machine

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Altec Lansing Corp
Associated Testing Labs
Baldwin-Lima-Hamilton
Boonshaft and Fuchs
Budd Co Inst Div
Carlson Co
CompuDyne Corp
Cosa Corp
Custom Scientific Instrs
Gaynes Engineering
General Regulator
Hacker & Co
Hirschmann Co Carl
Hunter Spring Co
L A B Corp
MB Electronics
Micro Balancing Inc
Pegasus Labs
Riehle Testing
Tinius Olsen Testing
Trott Electronics
Unholtz-Dickie
United Aircraft Prods
Westronics Inc
Wiedemann Machine

FLAW DETECTORS, Chemical

Magnaflux Corp
Met-L-Chek Co
Princeton Div

FLAW DETECTORS, Magnetic

Bell Inc F W
Bently Scientific
Budd Co Inst Div
Designers for Industry
Diee Co J W
Federal Mfg & Engrg
Hamilton Standard Div
Magnaflux Corp
Metrol Inc
Picker X-Ray Corp
Sperry Products Co

FLAW DETECTORS, Miscellaneous, including Resistance and/or Conductivity, also Holiday and Pin Hole Detectors

Assembly Products Inc
Bently Scientific
Branson Instruments
Budd Co Inst Div
Burton Mfg Co
Crest Instrument
Davenport Mfg
Designers for Industry
Diamond Power Specialty
Dice Co J W
Dynapar Corp
GE Apparatus Sales Div
G E Specialty Control
Hamilton Standard Div
Industrial Instruments
Magnaflux Corp
Metrol Inc
Micrometrical Mfg Co
Peschel Electronics
Photobell Co
Princeton Div
Radiation Electronics
Radionics Incorporated
Sunshine Scientific
Ultra-Violet Products
Unit Process Assemblies

FLAW DETECTORS, Radiography, including Beta-ray and X-ray (see also X-Ray)

Alden Electronic
Applied Radiation Corp
Baird-Atomic Inc
Bracke-Seib X-Ray
Braun-Knecht-Heimann
Budd Co Inst Div
Daystrom/Weston
Designers for Indsutry
Franklin Systems
G E Apparatus Sales Div
GE X-Ray Dept
High Voltage Engrg
Hughes Aircraft
Nuclear Corp of Amer
Nuclear Elx Corp
Picker X-Ray Corp
Princeton Div
Radionics Inc
Sperry Products Co
Tracerlab Inc
Zenith Radio Research

FLAW DETECTORS Ultrasonic

Alden Electronic
Arenberg Ultrasonic
Branson Instruments
Circo Ultrasonic
Designers for Industry
Dice Co J W
Elion Instruments
Ercona Corp
Magnaflux Corp
Natl Ultrasonic
Photocon Research
Powertron Ultrasonics
Princeton Div
Sperry Products Co
Sunshine Scientific
U S Sonics Corp

FLAW DETECTORS, CARS, for Rail Track Testing

Branson Instruments
Sperry Products Co

FORCE MEASURING EQUIPMENT (see also Torque)

Allegany Instrument
Associated Testing Labs
Astromics Div
Automatic Timing & Contls
B and F Instruments
Bently Scientific
Bytrex Corp
Baldwin-Lima-Hamilton
Cahn Instrument Co
Chatillon John
Control Devices
Cox Instruments
Daystrom/Mil Elx
Daystrom/Wiancko
Daytronic Corp
Decker Corp
Dillon & Co W C
Dynametrics Corp
Dynisco Inc
Exline Engrg
Gilmore Industries
Hagan Chem & Controls
High Temperature Instrs
Hunter Spring Co
Kistler Instrument Corp
Micro-Test Inc
Morehouse Machine
Performance Measurements
Polyphase Instr Co
Projects Unlimited
Ramapo Instrument
Research Products Co
Revere Corp of Amer
Riehle Testing
Rotiform Co
Sanborn Company
Schaevitz Engineering
Sierra Research Corp
Streeter Amet
Sunshine Scientific
Testing Machines Inc
Tinius Olsen Testing
United Aero Prod
Vinson Mfg Co
Webster Instrument
Wiancko Engrg Co
Wiedemann Machine

GEAR TEST INSTRUMENTS (see also Dimensional Gages)

Convair Instruments
Cosa Corp
Custom Scientific Instrs
Decker Corp
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Engis Equipment
Ercona Corp
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PIC Design Corp
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Telectro Industries
Vinco Corp
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Boone Instrument
Electric Hotpack
Epic Inc
Ercona Corp
Gaertner Scientific Corp
Instrumentation Assoc
Philadelphia Scien Glass
Zeiss Inc Carl

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Hirschmann Co Carl
Riehle Testing
Sanders Laboratories
Shore Instrument
Sunshine Scientific
Testing Machines Inc
Tinius Olsen Testing
Torsion Balance Co

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Barber-Colman
Brabender Instr C W
Buehler Ltd
Carlson Co
Custom Scientific Instrs
Designers for Industry
Hacker & Co
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Magnaflux Corp
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Opto-Metric Tools
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Pacific Transducer Corp
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RCA Industrial Elx
Riehle Testing
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Shore Instrument
Size Control Co
Techni-Rite Elx
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Torsion Balance Co
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Webster Instrument
Wilson Mechanical Instr

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Electro-Mechanical Res
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Hughes Products
Impact-O-Graph Corp
Pace Engrg Co
Ram Meter Inc
Sprengnether Instr
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Consol Electrodynamics
Custom Scientific Instrs
Hacker & Co
Hirschmann Co Carl
Impact-O-Graph Corp
Jan Hardware Mfg
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Scott Testers Inc
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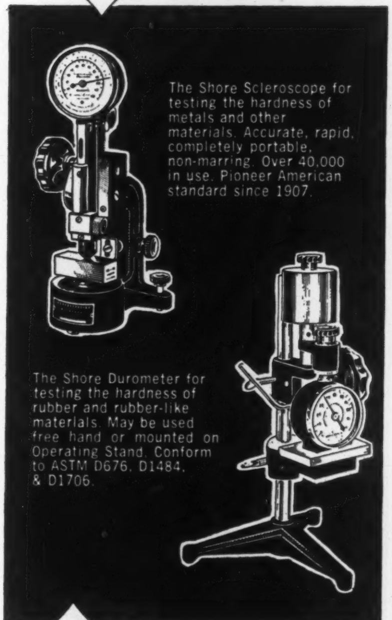

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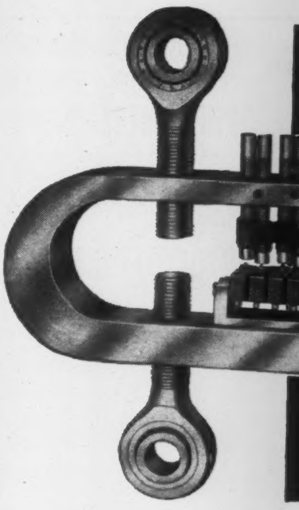

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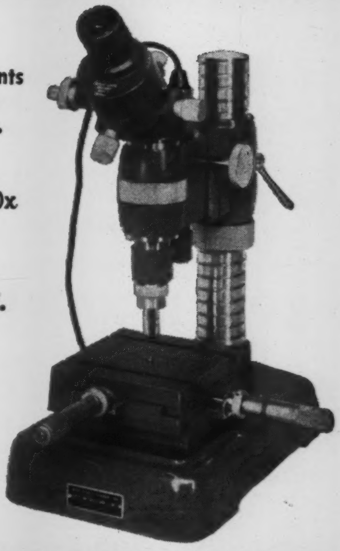

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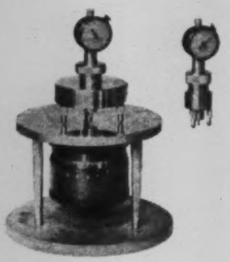

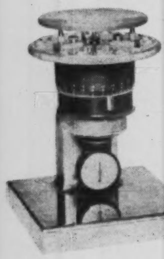

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Sticht Co Herman
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Sunshine Scientific
Warren-Knight Co
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Berger & Sons C L
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Coast Instrument
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Engis Equipment
Ercona Corp
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Gurley W & L E
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Keuffel & Esser
Lerma Engrg Corp
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Perkin-Elmer Corp
Scherr-Tumico
Tinsley Labs
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Warren-Knight Co
Zeiss Inc Carl

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Bausch & Lomb
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Buhl Optical Co
Coast Instrument
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Garlynn Engrg Co
Gordon Enterprises
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Bytrex Corp
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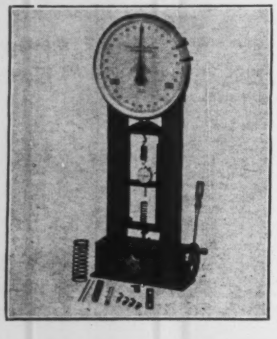

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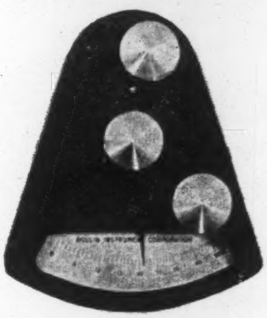

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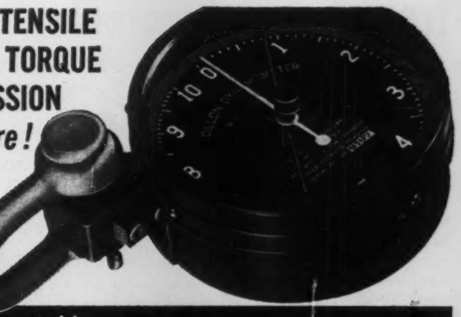

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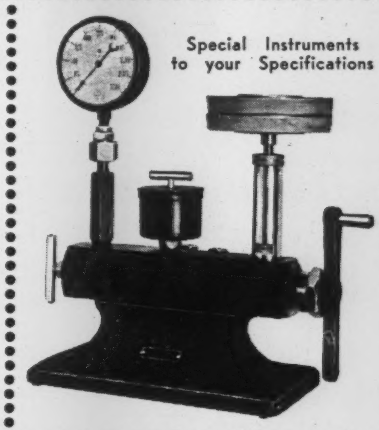

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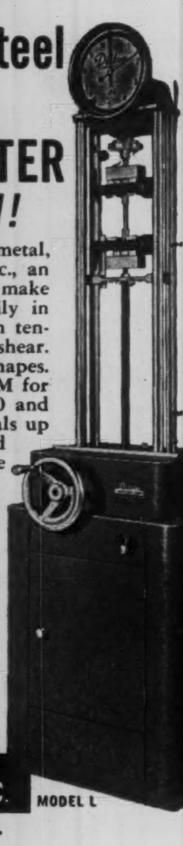

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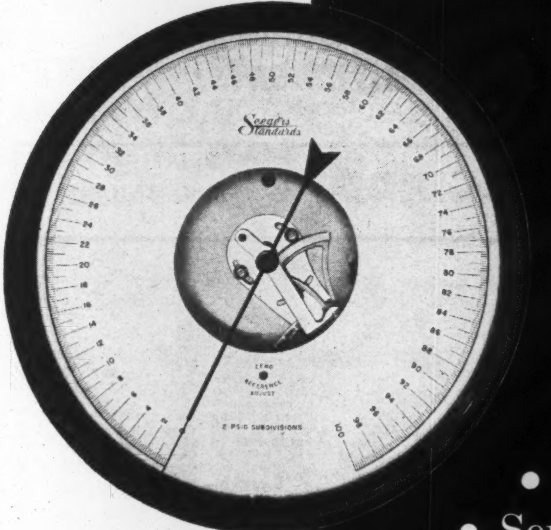

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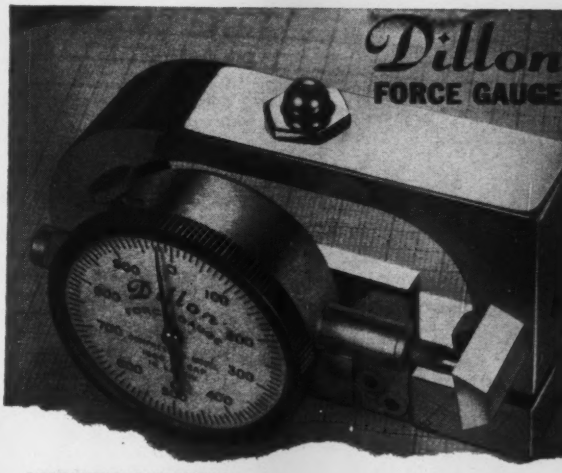

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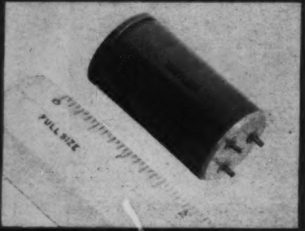

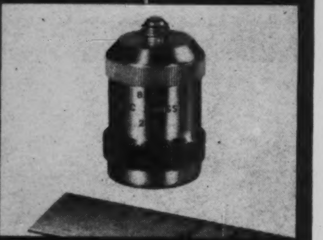

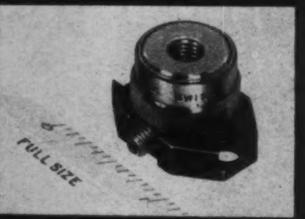

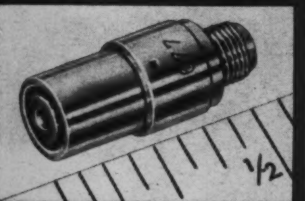

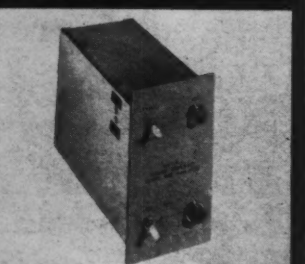

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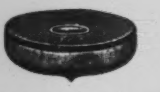

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PEDOMETERS

PHOTOCOPY & DUPLICATING EQUIPMENT (see also Xerography Equipment)

Copease Corp
Copymation Inc
DuPont Photo Prods
Eastman Kodak
Federal Mfg & Engrg
General Aniline & Film
General Binding Corp
General Photo Prods
Gordon Enterprises
Photomechanisms
Specialties Inc
Thermo-Fax
Vought Company
Williamson Development
Wollensak Optical
Xerox Corp

PHOTOGRAPHIC EQUIPMENT

Aristo Grid Lamp
Baird Atomic
Beattie Coleman
Beckman & Whitley
Burleigh Brooks Inc
Bushnell Co D P
Camera Equipment Co
Copymation Inc
Curtis Labs
Daystrom/Weston
Ercona Corp
Federal Mfg & Engrg
Goerz Amer Optical
Gordon Enterprises
Hulcher Co Inc C A
Hydel Inc
Ilex Optical Co
Lynn Robert M
Metalphoto Corp
Nortronics
Photomechanisms
Shapiro & Edwards
Tiffen Optical
Traid Corp
Tropel Inc
Welch Mfg Co W M
Wollensak Optical
Zeiss Inc Carl

PLUMB BOBS

Berger & Sons C L
Garlynn Engrg Co
Graf-Apsco Co
Gurley W & L E
Lufkin Rule Co
Starrett Co L S
Warren-Knight Co
Zoomar Inc

PROJECTORS, Film Slides Lantern Slide and Opaque Object

American Optical Co
Bausch & Lomb
Bebell & Bebell Color
Buhl Optical Co
Bushnell & Co D P
Camera Equipt Co
Dukane Corp
Eastman Kodak
Edmund Scientific Co
Ercona Corp
Federal Mfg & Engrg
General Aniline & Film
Gordon Enterprises
Hulcher Co Inc C A
LaFayette Instr
Optics Mfg Corp
Palos Optical Co
Photomechanisms
Reed Research Inc
Richardson Camera Co
Strong Electric Corp
Victor Animatograph
Williamson Development
Wollensak Optical

PYRHELIOMETERS

Belfort Instrument
Eppley Laboratory

RADIATION ALARMS

Applied Physics Corp
Beva Laboratory
Borg-Warner Controls
Budd Co Inst Div
Controls for Radiation
Cooper Development
Curtiss Wright
Designs for Tomorrow
Dresser Elx/SIE Div
Eberline Instrument
Electronics International
Federal Mfg & Engrg
Franklin Systems
Gelman Instrument
General Nuclear Corp
Land-Air Inc
Nuclear Elx Corp
Nuclear Materials & Equip
Nuclear Measurements
Nucleonic Corp of Amer
Philips Electronic
Picker X-Ray Corp
Princeton Div
Radionics Inc
Riggs Nucleonics
Telechrome Mfg Corp
U S Nuclear
Victoreen Instr Co
Westronics Inc
Wintronics

RADIOACTIVE ISOTOPES

Budd Co Inst Div
Controls for Radiation
Curtiss Wright
Franklin Systems
Instruments Inc
Isotopes Specialties
Nuclear-Chicago
Nuclear Corp of Amer
Nuclear Materials & Equip
Nucleonic Corp of Amer
Picker X-Ray Corp
Princeton Div
Radiation Applications
Radionics Inc
U S Nuclear
U S Radium Corp
Western Radiation Lab

RIDEOMETERS, Ride Comfort Recorders and Riding-quality Instruments

Impact Register Co

RULES, including Aluminum, Brass, Stainless Steel, and Steel

Altender & Sons
Croname Inc
Dixon Inc William
Etching Corp of Calif
Finescale Co
Lufkin Rule Co
Millers Falls Co
Photoplating Co
Renick Co L C
Starrett Co L S

RULES, Precision Standard

Altender & Sons
Brown & Sharpe Mfg Co
Gaertner Scientific
Gurley W & L E
Keuffel & Esser
Renick Co L C

SLIDERULES, Engineering Calculation

Berger & Sons C L
Graf-Apsco Co
Greiner Co Emil
Mann Co David W
Renick Co L C

STANDARDS, Mass

Dynametrics Corp
Gilmore Industries
Gurley W & L E
Morehouse Machine

STANDARDS, Pressure

Buck Instrument
Consol Electrodynamics
Daystrom/Wiancko
Fischer & Porter Co
Fredericks Company
Gilmore Industries
Gulton Industries
Hass Instrument
Hill & Co E Vernon
Ideal Aerosmith
Karr Co R J
Leeds and Northrup
Natl Instrument Labs
Norwood Controls
Rosemount Engrg Co
Ruska Instrument Corp
Wallace & Tiernan
Wiancko Engrg Co

STANDARDS, Temperature

Gilmore Industries
Hill & Co E Vernon
Leeds & Northrup
Precision Thermometer
Pyrometer Instr Co
Radiation Electronics
Rosemount Engrg Co
Ruge Associates
Telectro Industries
Trans-Sonics

STANDARDS, Time

Accurate Instrument
American Time Products
Artronic Instr Co
Borg Equipment Div
Canadian Marconi
Computer Measurements
Delta-f Inc
Designers for Industry
Erie Pacific
Fork Standards
General Radio
Geotechnical Corp
Gilmore Industries
Gryrex Corp
Hewlett Packard
Parsons Co Ralph M
Pickard & Burns
Rhode & Schwartz
Telectro Industries
Times Facsimile
Varo Mfg Co

Standards, Volume

Gurley W & L E

Stethoscopes, Engineers

Edmund Scientific Co

Surveying, including Aneroid Type

American Paulin
Askania-Werke
Bergen & Sons C L
Cubic Corp
Engis Equipment
Ercona Corp
Garlynn Engrg Co
Gordon Enterprises
Graf-Apsco Co
Gurley W & L E
Hastings-Raydist
Kern Instrs
Lynn Robert M
Starrett Co L S
Victoreen Instr Co
Wallace & Tiernan
Warren-Knight Co

SURVEYING INSTRUMENTS, Underground, for wells robore holes (see also Geophysical Instruments—Cat 7)

Berger & Sons C L
Buff & Buff Mfg
Diamond Power Specialty
Garlynn Engrg Co
Lenox Instrument Co
Kern Instrs
Nuclear Dev Lab
Sanders Labs
Seiscor Div
Servonic Instruments
Texas Instruments Inc

TRANSITS, Engineer's see Surveying Instruments

Consolidated Vacuum
Warren-Knight Co

TRANSITS, Pocket

Ainsworth & Sons
Garlynn Engrg Co
Graf-Apsco Co
Gurley W & L E
Soiltest Inc
Warren-Knight Co

WEIGHTS & MEASURES, Precision Standard

Hadley Inc H A

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Amphenol IP—DK Div
Amphenol RF Prods Div
Antenna & Radome Res
Arra Electronics
Automation Dynamics
Avien Inc
Bendix Radio Div
Bendix York Div
Bogart Mfg Corp
Brach Mfg Corp
Brooks & Perkins
Collins Radio
Croname Inc
Diamond Antenna
Dittmore-Freimuth
Dorne and Margolin
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Empire Devices
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Illumitronic Engrg
J F D Electronics
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Kearfott Microwave Div
Kennedy & Co D S
Kings Electronics
Land-Air Inc
Litton Systems
Lockheed Electronics
Martin Company
Maxson Electronics Corp
Melabs Inc
Microwave Associates
Model Engrg
Model Engrg & Mfg Corp
Motorola Military Elx
Narda Corp
Philco Corp
Pickard & Burns
Radiation Inc
Rantec Corp
Raymond Engrg Lab
Raytheon/Comm Apparatus
Reeves Instr Corp
Sanders Associates
Scala Radio Co
Scientific-Atlanta
Servo Corporation
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Sterling Precision
Stewart-Warner Corp
Strand Engrg Co
Sylvania Electronic Sys
TRG Inc
Tapco Group
Tech Appliance Corp
Telectro Industries
Telerad Div
Turbo Machine Co
United Shoe Machinery
Uniwave Inc
Virginia Electronics
Waber Electronics
Waveline Inc

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Ampco Mfg Co
Bay-Tronic Co
Bowmar Instrument
Cleveland Metal Spec
CompuDyne Corp
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Dittmore-Freimuth
Dynage Inc
Eastern Specialty Co
Federal Pacific
General Mills Inc
Hamilton Watch Co
Kavamil Co
Kearfott Div
Land-Air Inc
Magnetic Instr Co
Maxson Electronics Corp
Med-Tronics Mfg Co
Model Engrg
Model Engrg & Mfg Corp
Newton Co
Paraplegics Mfg Co
Plumb Co D S
Precision Prods (Tulsa)
Rantec Corp
Reeves Instr Corp
Shallcross Mfg Co
Specialty Electronics
Speck Electronics
Speed Electronics
Standard Winding
Sunshine Scientific
Superior Carbon Prod
Superite Instrument
Swiss Amer Jewel
TRG Inc
Telectro Industries
Tenco Electronics
Tri-Dex Co
Trio Laboratories
United Shoe Machinery
Virginia Electronics
Waber Electronics
Waltham Precision Instr
Williamson Development

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Alford Mfg
Antenna & Radome Res
Arenberg Ultrasonic
Arra Electronics
Bendix Scintilla Div
Bogart Mfg Corp
Corning Glass
Daven Co
Demornay-Bonardi
Diamond Antenna
Dittmore-Freimuth
Douglas Microwave Co
DYMEC
Electronic Dev Corp
Electronic Specialty Co
Empire Devices
Energy Kontrols
Entron Inc
Ercona Corp
FXR Inc
Film Resistors
Filmohm Corp
General Communication
General Microwave Corp
General Radio
Gulton Industries
Hewlett-Packard
Kay Electric Co
Kearfott Div
Maxson Electronics Corp
Measurements Div
Micromat Co
Microphase Corp
Midwestern Instr
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Muirhead Instr
Narda Corp
New London Inst
Ohmite Mfg Co
Ram Meter Inc
Rantec Corp
Rixon Electronics
Servo Corporation
Shallcross Mfg Co
Specialty Electronics
Sperry Microwave
Stoddart Aircraft Radio
TRG Inc
Tapco Group
Telectro Industries
Telerad Div
Telonic Engineering
Trad Electronics
Turbo Machine Co
Ultronix Inc
United Shoe Machinery
Uniwave Inc
Virginia Electronics
Waveline Inc
Weinschel Engrg
Zenith Optical Lab

BALLS, Bronze, Monel, etc.

Beamco Inc
Bearing Inspection Inc
Elgin Natl Watch
Hartford Steel Ball
Industrial Tectonics
Intl Powder Metallurgy
Micro Surface Engrg
New Departure Div
Wall Colmonoy

BALLS, Glass

Corning Glass
Hartford Steel Ball
Industrial Tectonics
Jones Optical A D
Lynn Robert M
Micro Surface Engrg
Owens-Illinois Glass Co
Penn Optical & Instr
Wollensak Optical

BALLS, Precision, Sapphire, Ruby, Carbide

Bearing Inspection Inc
Industrial Tectonics
Keller Hugo P
Kennametal Inc
Micro Surface Engrg
Sphinx-American Co
Wollensak Optical

BALLS, Stainless Steel and or Steel, Polished (0.5mm min. dia.)

Beamco Inc
Bearing Inspection Inc
Crucible Steel
Deltronic Corp
Hartford Steel Ball
Industrial Tectonics
Intl Powder Metallurgy
Kearfott Div
Landis & Gyr
Micro Surface Engnr
New Departure Div
New Hampshire Ball
PIC Design Corp

BALLS, Wood

Industrial Tectonics
Micro Surface Engrg

BATTERIES, Dry

Burgess Battery
Carbone Corp
Cook Co Frank R
Eagle-Picher Co
Gulton Industries Inc
Mallory & Co P R
Marathon Battery
Natl Carbon Co
NICAD Division

BATTERIES, Mercury

Burgess Battery
Mallory & Co P R
Natl Carbon Co

BATTERIES, Radioactive

Radiation Appliances
Tracerlab-Keleket

BATTERIES, Solar

Hoffman Electronics
Hoffman Laboratories Div
International Rectifier

BATTERIES, Storage

Cook Co Frank R
Eagle-Picher Co
Electric Autolite
Gulton Industries
NICAD Division
Power Sources Div
Yardney Electric

BATTERY ELIMINATORS

Argonaut Asso
Cadillac Rectifier
Christie Electric
Control Data Corp
DJECO
Dynage Inc
Eico Electronic Instr
Elcor Inc
Electro Products Labs
Electrodynamics Instr
Gates Electronic
General Nuclear Corp
Green Rectifier
Hays Corporation
Instrulab Inc
Interelectronics
Invar Electronics
Kollsman Instr Corp
Microloc Corp
Model Rectifier
North Electric Co
Perkin Engrg Corp
Power Controls Div
Ramm Rectifier Co
Raytheon/Comm Apparatus
Raytheon/Volt & Reg Opn
Schauer Mfg Corp
Sorensen & Co
Tech Apparatus Bldrs

BEARINGS, Ball, Roller, and Needle

Barden Corp
Bearing Inspection Inc
Boston Gear Works
Corning Glass
Farnir Bearing Co.
Gatti Inc Aurele M
Graphite Metallizing
Industrial Tectonics
Kearfott Div
Landis & Gyr
Microtech Div
Minature Prec Bearings
New Departure Div
New Hampshire Ball
PIC Design Corp
Reed Inst Bearing Co
Split Ballbearing
Torrington Co

BEARINGS, Precious Metal

Bearing Inspection Inc
Bird & Co Richard
Fafnir Bearing Co
Gibson Electric
Industrial Tectonics
Moser Jewel
New Departure Div
Superior Carbon Prod
WE-Micarta Div

BEARINGS, Ring

Bird & Co Richard
Gatti Inc Aurele M
Keller Hugo P
New Departure Div
Superior Carbon Prod
Swiss Amer Jewel

BEARINGS, Self Lubricating

Barden Corp
Boston Gear Works
Carbone Corp
Gits Bros Mfg
Graphite Metallizing
Industrial Tectonics
Intl Power Metallurgy
Johnson Bronze Co
Lignum Vitae Prods
New Departure Div
Northfield Prec Instr
Nylon Moldin
Ohio Carbon Co
PIC Design Corp
Polymer Corp
Richardson Co
Split Ballbearing
Stackpole Carbon
Stratos Div
Superior Carbon Prod
We-Micarta Div

BELLOWS, Kovar

Belfab Corp
PIC Design Corp

BELLOWS, Metallic, including Stainless Steel

Alloy Bellows
Anaconda Metal Hose
Automatic Control Co
Belfab Corp
Bridgeport Thermostat
Bristol Co
Bulova Research
Colvin Labs
Cook Electric Co
Flexonics
Fulton Sylphon Div
Gits Bros Mfg
Hagan Chem & Controls
Kinemotive Corp
Leemath Inc
Molded Insulation
PIC Design Corp
Robertshaw-Fulton Contl
Servometer Corp
Sterling Precision

BELLOWS, Plastic

Anaconda Metal Hose
Gagne Associates A F
Marlin-Rockwell Corp
Warren Automatic Control

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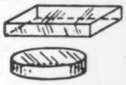
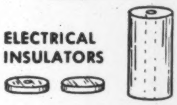
SAPPHIRE

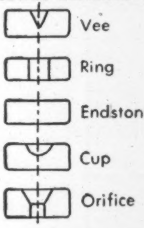
WEAR PARTS



ELECTRICAL INSULATORS



JEWEL BEARING TYPES



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CIRCLE 265 ON READER-SERVICE CARD

BELLOWS, Thermostatic

Bridgeport Thermostat
Kinemotive Corp
Robertshaw-Fulton Contl
Scaico Controls
United Electric Controls

BLOWERS & FANS, Equipment Cooling

Air Marine Motors
Airesearch Mfg Co
AMCO Engrg Co
American Electronics Inc
Ashland Electric
Bud Radio
Dynamic Air Engineering
Eastern Air Devices
Eastern Industries
Eicor Div
Fasco Industries Inc
General Turbine
Globe Industries
Heinze Electric
IMC Magnetics
Ingersoll-Rand Co
Ipsen Industries
Kearfott Div
Luther Mfg Co
McLean Engineering Labs
Minark Electric
Pesco Products Div
Robbins & Myers
Roots-Connersville
Rotating Components Inc
Rotron Mfg Co
United Aircraft Prods
Western Design
Western Devices
Western Gear Corp

BRAKES, Mechanical and Magnetic

Airborne Accessories
Autotronics Inc
Bernco Engineer
Bowmar Instrument
Carmody Corp
Cutler-Hammer
Dynamatic Div
Dynamic Instr Corp
Dynex Inc
Electro-Autosizing
Electroid Corp
FAE Instrument
Fairbanks-Morse
GE Apparatus Sales Div
General-Electro Mech
Globe Industries
Guidance Controls Corp
Hawk Tool & Engrg
Hodge Controls Div
Kearfott Div
Kinetic Instr Corp
M-H Military Prods Grp
Norman Hardy Assoc
Northfield Prec Instr
PIC Design Corp
Reeves Instr Corp
Simplatrol Products
Square D Co
Sterling Precision
Technology Instr (Mass)
Ultronix Inc
Valcor Engrg Corp
Vickers Electric Prods Div
Warner Electric Brake
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Amphenol IP DK Div
Amphenol RF Prods Div
Amphenol Western
Arens Controls
Associated Engineering
Bay-Tronic Co
Bendix Scintilla Div
Bernco Engrg Corp
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Boston Insulated Wire
Brach Mfg Corp
Brand-Rex Div
Burndy Corp
Cable Designs
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Cannon Electric
Carol Electronics
Carter Parts Co
Chester Cable
Cicoil Corp
Crosby-Teletronics Corp
Dale Electronics
Dekoron Prods Div
Designs for Tomorrow
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Diamond Antenna
Dittmore-Freimuth
Dynex Inc
Eagle Signal
Eastern Specialty Co
Elco Corp
Electronic Heat Treating
Electronic Specialty Co
Electrovert Inc
Essex Wire Corp
Foley Electronics
General Mills Inc
General RF Fittings
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Gore & Associates
Guardian Electric
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HiTemp Wires Inc
Hughes Aircraft
Janco Corp
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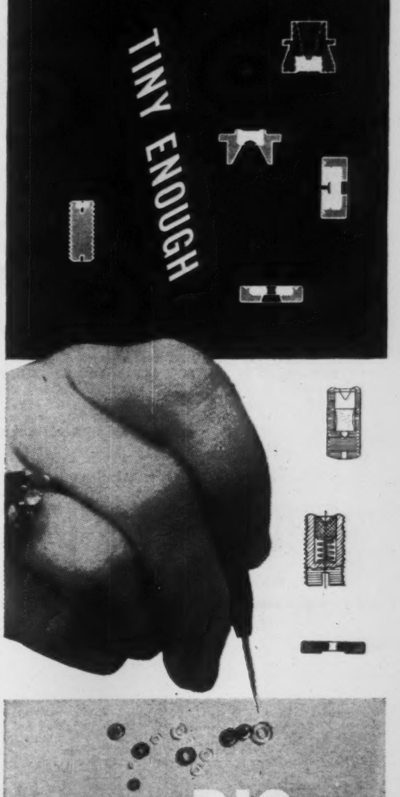
Bird
JEWEL BEARINGS



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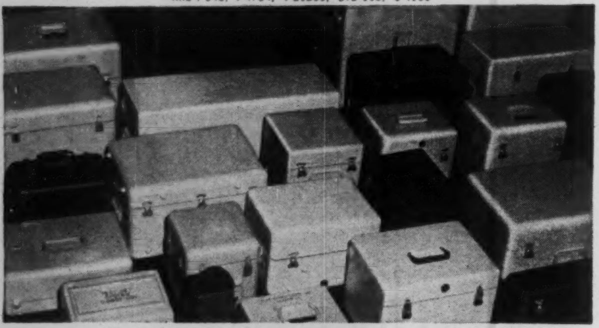

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Molex Products
National Connector Corp
Newton Co
Nortronics
Pacific Electro Magnetic
Pacific Scientific
Paraplegics Mfg Co
Pearce-Simpson Inc
Permoflux Products
Phalo Plastics Corp
Pomona Electronics
Projects Unlimited
Revere Corp of Amer
Robins Industries
Royal Electric Corp
Ruge Associates
Sealectro Corp
Sequoia Wire
Sierra Research Corp
Sittler Corp
Specialty Electronics
Spectra-Strip Wire & Cab
Speed Electronics
Standard Electronics
Standard Winding
Stretch Wire Corp
Strong Electric Corp
Sunshine Scientific
Superior Carbon Prod
Surprenant Mfg Co
Switchcraft Inc
Times Wire & Cable
Tri-Dex Co
Trott Electronics
Vector Mfg Co
Virginia Electronics
Waber Electronics
Waltham Horological

CABLE, Coaxial

Alford Mfg
Alpha Wire Corp
American Electric Cable
Amphenol Cable
Amphenol RF Prods Div
Anaconda Wire & Cable
Bendix Scintilla Div
Birnbach Radio Co
Boston Insulated Wire
Brand-Rex Div
Cable Designs Inc
Chester Cable
Dittmore-Freimuth
Dynex Inc
Edison Industries T A
Electric Autolite
Electronic Specialty Co
General Radio
Gore & Associates
HiTemp Wires Inc
Instruments Inc
Intelex Systems Inc
Land-Air Inc
Lenz Electric Mfg
Lewis Engrg Co
Magnetic Shield Div
Microdot Inc
Miller Co L C
Missile Systems Corp
Normandy Electric Wire
Pacific Scientific
Phalo Plastics Corp
Phelps Dodge Copper Prod
Precision Tube Co
Rockbestos Wire & Cable Co
Royal Electric Corp
Sequoia Wire
Sequoia Wire & Cable Co
Simplex Wire & Cable
Spectra-Strip Wire & Cab
Stretch Wire Corp
Surprenant Mfg Co
Tensolite Insul Wire
Thermax Wire
Times Wire & Cable
Warren Wire Co
Western International

CABLE, Flexible, Control

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Anaconda Wire & Cable
Arens Controls
Bendix Scintilla Div
Birnbach Radio Co
Blaco Mfg Co
Boston Insulated Wire
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Cable Designs Inc
Chester Cable
Clark Flex Link Shaft
Collyer Insulated Wire
Dittmore-Freimuth
Essex Wire Corp
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N P Company
Normandy Electric Wire
Pacific Scientific
Phalo Plastics Corp
Phelps Dodge Copper Prod
Physical Sciences Corp
Revere Corp of Amer
Rockbestos Wire & Cable Co
Royal Electric Corp
Sanders Associates
Sequoia Wire
Sequoia Wire & Cable Co
Simmonds Aerocessories
Simplex Wire & Cable
Spectra-Strip Wire & Cab
Stewart Corp F W
Stretch Wire Corp
Tapeswitch Corp
Tech Wire Assoc
Tensolite Insul Wire
Times Wire & Cable
Vector Mfg Co
Warren Wire Co
White Dental Mfg

CAPACITORS, Air

Amer Television & Radio
Capitron Div
Chicago Condenser
Dittmore-Freimuth
General Instrument Corp
General Radio
Johanson Mfg
Johnson Co E F
Leeds & Norhtrup
Millen Mfg Co
Muirhead Instrs Inc
Permoflux Products
Radio Condenser Co
Telechrome Mfg Corp

CAPACITORS, Ceramic

Aerovox Corp
Allen-Bradley
American Lava Corp
Astron Corp
Cambridge Thermionic
Capitron Div
Centralab Div
Corning Glass
Dale Electronics
Du-Co Ceramics
Electra Mfg
Electronic Associates
Ercona Corp
Erie Resistor
General Radio
Good-All Electric
Gulton Industries Inc
Hi-Q Div
Hughes Aircraft
JFD Electronics
Johanson Mfg
Kavamil Co
Mallory & Co P R
Mucon Corp
Physical Sciences Corp
San Fernando Electric
Sangamo Electric Co
Saxonburg Ceramics
Soiltest Inc
Sprague Electric Co

CAPACITORS, Electrolytic

Aerovox Corp
Airborne Accessories
Allen Avionics Inc
Astron Corp
Capcon Inc
Capitron Div
Delco Products
Efcon Incorporated
Erie Resistor
Electronic Associates
Fansteel Metallurgical
GE Apparatus Sales Div
Good-All Electric
Gulton Industries
Gudeman Co
Hi-Q Div
Illinois Condenser Co
Mallory & Co P R
Ohmite Mfg Co
Pyramid Electric Co
Sangamo Electric Co
Sprague Electric Co
Standard Pressed Steel
Texas Instruments Inc

CAPACITORS, Fixed Composition

Aerovox Corp
Airborne Accesories
Astron Corp
Balco Research Labs
Bendix Scintilla Div
Capcon Inc
Capitron Div
Centralab Div
Chicago Condenser
Corning Glass
Dearborn Electronic
Electronic Associates
Erie Resistor
Fast & Co John E
GE Apparatus Sales Div
Good-All Electric
Interelectronics
Mallory & Co P R
National Spectrographic
Plastic Capacitors Inc
Pyramid Electric Co
San Fernando Electric
Sangamo Electric Co
Stackpole Carbon
Tobe Deutschmann Corp
Vitramon Inc

CAPACITORS, Glass

Cambridge Thermionic
Capitron Div
Corning Glass
Dearborn Electronic
Erie Resistor
Fast & Co John E
General Radio
JFD Electronics
Johanson Mfg
Owens-Illinois Glass Co
Plastic Capacitors Inc

CAPACITORS, High Voltage

Aerovox Corp
Astron Corp
Balco Research Labs
Bendix Scintilla Div
Capcon Inc
Capitron Div AMP
Centralab Div
Chicago Condenser
Columbus Electronics
Component Research Co
Corning Glass
Corson Electric Mfg
Dearborn Electronic
Electronic Fabricators
Epic Inc
Erie Resistor
Fast & Co John E
Film Capacitors Inc
Filtron Co
GE Apparatus Sales Div
Gudeman Co
Gulton Industries
Hi-Q Div
Interelectronics
JFD Electronics
Jennings Radio Mfg
Johanson Mfg
Plastic Capacitors Inc
Pyramid Electric Co
Rohde & Schwarz
San Fernando Electirc
Sangamo Electirc Co
Southern Electronics
Sprague Electric Co
Texas Instruments Inc
Tobe Deutschmann Corp
Vitramon Inc

CAPACITORS, Metallized Paper

Aerovox Corp
Airborne Accessories
Astron Corp
Balco Research Labs
Capcon Inc
Capitron Div., AMP
Chicago Condenser
Dearborn Electronic
Ercona Corp
Fast & Co John E
Film Capacitors Inc
Filtron Co
General Radio
Gudeman Co
Hi-Q Div
Intelex Systems Inc
Interelectronics
Marathon Electric
Presin Co
Pyramid Electric Co
San Fernando Electric
Sangamo Electric Co
Sprague Electric Co
Tobe Deutschmann Corp

CAPACITORS, Mica

Ace Electronics Assoc
Aerovox Corp
Airborne Accessories
Balco Research Labs
Bendix Scintilla Div
Capitron Div., AMP
Corson Electric Mfg
Ercona Corp
Erie Resistor
Fast & Co John E
General Radio
Hi-Q Div
Interelectronics
Muirhead Instrs Inc
Sangamo Electric Co
Sprague Electric Co
Wells Electronics

CAPACITORS, Paper

Aerovox Corp
Astron Corp
Balco Research Labs
Capcon Inc
Capitron Div., AMP
Chicago Condenser
Corson Electric Mfg
Dearborn Electronic
Ercona Corp
Fast & Co John E
Film Capacitors Inc
Filtron Co
General Dynamics/Elx
GE Apparatus Sales Div
General Radio
Gudeman Co
Gudeman Co of Calif
Hi-Q Div
Illinois Condenser Co
Mallory & Co P R
Marathon Electric
Muirhead Instrs Inc
Plastic Capacitors Inc
Pyramid Electric Co
San Fernando Electric
Sangamo Electric Co
Sprague Electric Co
Tobe Duetschmann Corp

CAPACITORS, Plastic Dielectric

Aerovox Corp
Airborne Accessories
Astron Corp
Balco Research Labs
Bendix Cincinnati Div
Capitron Div., AMP
Capcon Inc
Chicago Condenser
Component Research Co
Corson Electric Mfg
Dearborn Electronic
Electro-Measurements
Electronic Applications
Electronic Fabricators
Erie Resistor
Fast & Co John E
Film Capacitors Inc
Filtron Co
GE Apparatus Sales Div
General Radio
Gudeman Co
Gudeman Co of Calif
Hi-Q Div
Interelectronics
Landsverk Electrometer
Mallory & Co P R
Marathon Electric
Paktron
Pimex Inc
Plastic Capacitors Inc
Pyramid Electric Co
San Fernando Electric
Sangamo Electric Co
Southern Electronics
Sprague Electric Co
Tobe Deutschmann Corp

CAPACITORS, Precision (0.01) (0.017)

Allen Avionics Inc
Balco Research Labs
British Industries
Capcon Inc
Centralab Div
Chicago Condenser
Component Research Co
Corning Glass
Electro Scientific Ind
Electronic Associates
Ercona Corp
Erie Resistor
Fast & Co John E
GE Apparatus Sales Div
General Radio
Gudeman Co
Gulton Industries
Hughes Products
Illinois Condenser Co
Interelectronics
JFD Electronics
Johanson Mfg
Kavamil Co
Leeds & Northrup
Mallory & Co P R
Marathon Electric
Muirhead Instrs Inc
San Fernando Electric
Sangamo Electric Co
Southern Electronics
Sprague Electric Co
Standard Pressed Steel
Texas Instruments Inc
Tobe Deutschmann Corp
Winslow Electronics Inc

CAPACITORS, Tantalum

Aerovox Corp
Astron Corp
Balco Research Labs
Efcon Incorporated
Electronic Fabricators
Fansteel Metallurgical
Hi-Q Div
GE Apparatus Sales Div
Gulton Industries
ITT Components Div
Intelex Systems Inc
Ohmite Mfg Co
Paktron
Pyramid Electric Co
Sangamo Electric Co
Sprague Electric Co
Standard Pressed Steel
Texas Instruments Inc
Tansitor Electronics
U. S. Semiconductor Prods

CAPACITORS, Vacuum

Amperex Electronic
Balco Research Labs
Chicago Condenser
Dolinko & Wilkens
Fast & Co John E
Jennings Radio Mfg
Mallory & Co P R

CAPACITORS, Variable

Aerovox Corp
Argonaut Asso
Atlee Corp
Barker & Williamson
Bud Radio
Cambridge Thermionic
Centralab Div
Columbus Electronics
Component Research Co
Corning Glass
Dittmore-Freimuth
Electro Scientific Ind
Electronic Associates
Ercona Corp
Erie Resistor
General Instrument Corp
General Radio
Gulton Industries
Hughes Products
International Rectifier
JFD Electronics
Jennings Radio Mfg
Johanson Mfg
Johnson Co E F
McCoy Electronics
Millen Mfg Co
Muirhead Instr
Oak Mfg Co
Pacific Semiconductors
Radio Condenser Co
Southern Electronics
Telechrome Mfg Corp

CAPACITORS, Vitreous Enamel

Physical Sciences Corp
Vitramon Inc

CASES, Instrument

Abalon Precision
Alpitec Inc
Amco Engrg Co
Argonaut Asso
Artisan Metal Works
Bristol Co
Brooks & Perkins
Bud Radio
Calif Chassis
Churchill Lighting
Croname Inc
Danco Metal Products
Daniels Inc C R
Davies Molding Co
Eugene Engrg Co
Falstrom Company
Fischer & Porter Co
Formweld Products Co
Franklin Systems
General Railway Signal
Keystone Mfg Co
Littleford Bros
M M Enclosures
Milton Ross Metals
Natl Vulcanized Fibre
Nortronics
PIC Design Corp
Premier Metal Products
Rueckert Mfg Co
Shingle Company L H
Skydyne Inc
Statolet Corp
Waber Electronics
Waldom Electronics
Warwick Products Co

CHAINS, Miscellaneous

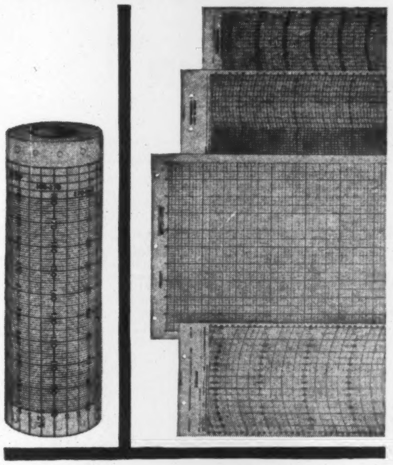
Auto-Swage Products
Bead Chain Mfg Co
Boston Gear Works
Jeffrey Mfg
Morse Chain Co
Sierra Engineering
Warren-Knight Co

CHARTS, Electrosensitive and Spark

Alden Electronic
Alfax Paper & Engrg Co
Bristol Co
Brush Instruments Div
Fawley-Brost
Graphic Controls Corp
Gubelman Charts
Judson Bigelow Inc
Offner Electronics
Precision Record Chart
Schueler & Co
Techni-Rite Elx

CHARTS, Heat Sensitive

Bristol Company
Brush Instruments Div
Fawley-Brost
Graphic Controls Corp
Gubelman Charts
Ludlow Papers
Techni-Rite Electronics
Westronics Inc



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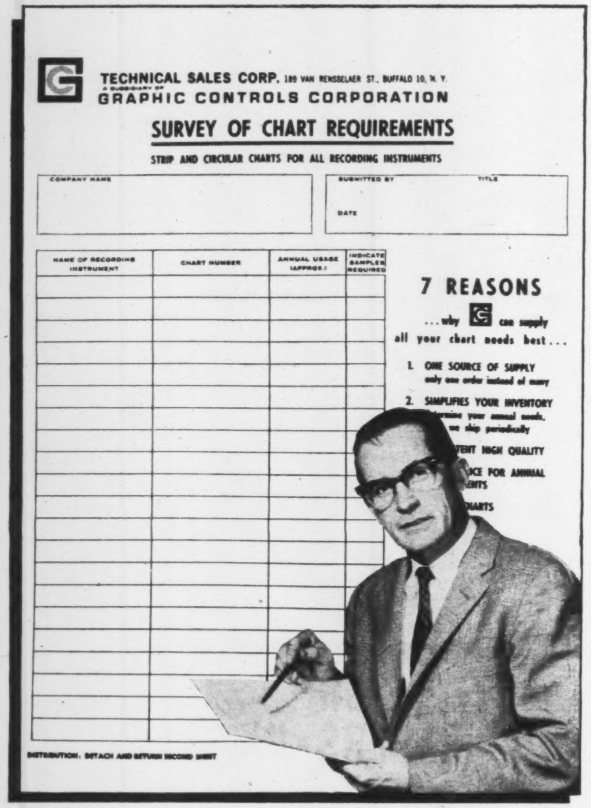

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SUBMITTED BY

TITLE

DATE

NAME OF RECORDING INSTRUMENT	CHART NUMBER	ANNUAL USAGE (APPROX.)	INDICATE SAMPLES REQUIRED

7 REASONS

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CHARTS

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4. **LOWER COST,** through the modern production methods of the world's largest chart manufacturer and supplier, means big savings to you.
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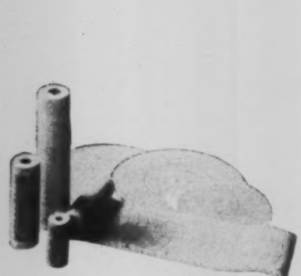

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Bristol Co
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Dittmore-Freimuth
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Esterline-Angus
Fawley-Brost
Fischer & Porter Co
Foxboro Company
General Radio
Graphic Controls Corp
Gubelman Charts
Hagan Chem & Controls
Judson Bigelow Inc
Leeds & Northrup
M-H Brown Instrs Div
Manning Maxwell & Moore
Newport Scientific Co
Offner Electronics
Partlow Corp
Precision Record Chart
Princeton Div
Republic Flow Meters
Schueler & Co
Taylor Instrument
Techni-Rite Elx
Texas Instruments Inc
Weksler Instruments
Westinghouse Electric
Westronics Inc

CHARTS, Pressure Sensitive

Bristol Company
Fawley-Brost
Graphic Controls Corp
Gubelman Charts
Impact Register Co
Ludlow Papers
Techni-Rite Electronics

CHARTS, Smoke

Bristol Co
Fawley-Brost
Judson Bigelow Inc
Photomation Inc
Techni-Rite Elx

CHARTS, Stylus

Bristol Co
Dittmore-Freimuth
Engis Equipment
Fawley-Brost
Graphic Controls Corp
Gubelman Charts
Judson Bigelow Inc
Ludlow Papers
Offner Electronics
Precision Record Chart
Sanborn Company
Sanders Associates
Schueler & Co
Schwarzer Co.
Stanpat Company
Techni-Rite Elx

CHASSIS, Instrument (see also Cabinets, also Cases)

ACF Electronics
Abalon Precision
Alden Electronic
Alden Products Co
Alpitec Inc
Amco Engrg Co
Argonaut Asso
Artisan Metal Works
Brooks & Perkins
Bud Radio
Calif Chassis
Cetron Electronic
Chassis-Trak Inc
Christman Inds
Churchill Lighting
Control Devices
Cook Electric Co
Danco Metal Products
DuMont Labs Allen B
Electro-Autosizing
Electrospace Corp
Erwood Inc
Falstrom Company
Federal Mfg & Engrg
Hamner Electronics
Instruments Inc
Keystone Mfg Co
Machinery Electrification
Nuclear Materials & Equip
Par Metal Products
Plug-In Instruments Inc
Premier Metal Products
Projects Unlimited
Space Products
Telectro Industries
Ultrasonic Industries
Waber Electronics
Western Devices Inc

CIRCUITS, Graphic, including Printed, Electric, Stamped Etched, and Components

Abacus Inc
ACF Electronics
Airborne Instr Lab
Airtronics Inc
Allegri-Tech
Amatom Electronic
Amelco Inc
Amer Printed Circuits
Amphenol-Packaged Elx
Anelex Corp
Applied Instruments Inc
Artronic Instrument
Beck S Inc
Bell Inc, F W
Bendix Radio Div
Bendix York Div
Bernco Engineer
Bureau of Engraving Inc
Burr-Brown Res
Burroughs Corp
C and K Components
CTS Corporation
Canadian Radium
Centralab Div
Ceramatronics
Cetron Electronic
Cleveland Metal Spec
Colorado Research Corp
Control Devices
Control Equipment Corp
Cook Electric Co
Corning Glass
Croname Inc
Curtis Dev & Mfg
Dalmotor Div
Daystrom/Mil Elx
Defiance Printed Circuit
Dittmore Freimuth
Dukane Corp
Eastern Reproductions
Electro Instruments
Electrodynamic Instr
Electronic System Dev
Engineered Electronics
Etching Co of Calif
Federal Mfg & Engrg
Franklin Systems
Garlock Inc
General Communication
General Instr Corp
Genesys Corp
Globe Electrical
Graphik-Circuits
Gulton Industries Inc
HRB-Singer Inc
Hamilton Standard Div
Hoover Electronics
Hughes Aircraft
Hydel Inc
Instruments Inc
International Resistance
Kavamil Co
Kellogg Switchboard
Kollsman Instr Corp
Link Div
Litton Systems
Lockheed Electronics
M-H Military Prods Grp
Martin Company
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Melabs Inc
Melpar Inc
Milton Ross Metals
Milton Roy Co
Molded Insulation
Molex Products
Monitor Systems Inc
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Nortronics
Nuclear Materials & Equip
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Panellit Inc
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Plug-In Instruments Inc
Precision Circuits Inc
RCA Defense Electronic
Radiation Inc
Renick Co L C
Rowe Engravers Inc
Sanders Associates
Sierra Research Corp
Speck Electronics
Speed Electronics
Sprague Electric Co
Standard Winding
Stavid Div
Stocker & Yale Inc
Stromberg-Carlson Co
Superior Carbon Prod
Sylvania Electronic Sys
Taylor Fibre Co
Techron Corp
Ucinite Co
Ultronix Inc
Virginia Electronics
Voi-Shan Electronics
Wells Electronics
Western Devices
Western Electronic Prods
Zenith Optical Lab

CIRCUITS and COMPONENTS, Plug-in

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Abacus Inc
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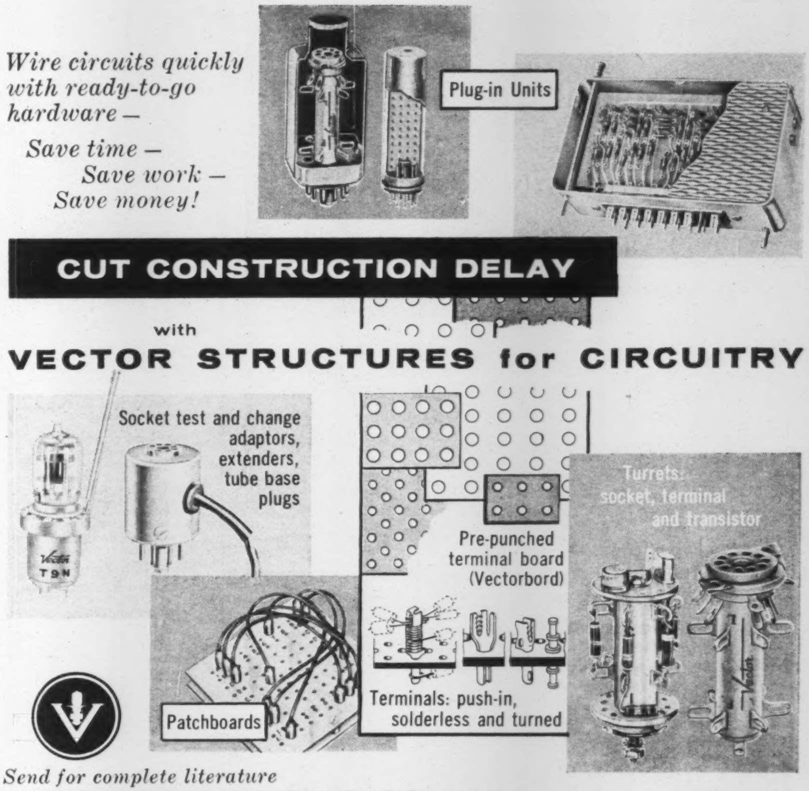
Airborne Instr Lab
Airflyte Electronics
Airpax Electronics
Alden Products Co
Allegri-Tech
Ampco Mfg Co
Artronic Instr Co
Auerbach Electronics
Automation Dev Corp
Becks Inc
Bendix Radio Div
Bendix York Div
Bernco Engineer
Bulova Research
Burr-Brown Res
Burroughs Corp
C and K Components
Centralab Div
Cetron Electronic
Circon Component
Cleveland Metal Spec
Computer Control
Computer Measurements
Control Equipment Corp
Cook Electric Co
Corning Glass
Cubic Corp
Dalmotor Div
Daystrom/Mil Elx
Defiance Printed Circuit
Deltron Inc
Designs for Tomorrow
Di/An Controls
Digitronics Corp
Dukane Corp
Eastern Reproduction



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Empire Products Inc
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Erie Pacific
Erie Resistor
Etching Corp of Calif
Franklin Systems
GE Apparatus Sales Div
GE Heavy Mil Elx Dept
Garde Mfg Co
General Communication
General Instr Corp
Genesys Corp
Graphik-Circuits
Guardian Electric
Gyrex Corp
Hagan Chem & Controls
Hamilton Standard Div
Hughes Products
Hydel Inc
Instruments Inc
Kavamil Co
Kearfott Div
Kellogg Switchboard
Kulka Electric
Land-Air Inc
Link Div
Litton Systems
Lockheed Electronics
M-H Military Prods Grp
MaClaren & Co F B
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Melpar Inc
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Natel Engrg Co
Navigation Computer Corp
Networks Elx Corp
North Electric
Nuclear Materials & Equip
Orion Electronic Corp
P and H Electronics
Pacific Electro Magnetic
Packard Bell
Philbrick Researches Inc
Philco Corp
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Pomona Electronics
Radiation Inc
Ransom Research
Rheem Semiconductor
Rodale Electronics
Rosemount Engrg Co
Rotary Devices Corp
Sierra Research Corp
Speck Electronics
Speed Electronics
Sprague Electric Co
Standard Winding
Summers Gyroscope
Sylvania Electronic Sys
Technitrol Engrg
Tele-Dynamics Div
Telectro Industries
Tempo Intrument
Ucinite Co
Ultronix Inc
United Control Systems
United Transformer
Varo Mfg Co
Vector Electronic
Virginia Electronics
Walkirt Co
Wells Electronics

CIRCUITS, Potted, including Embedded Components

ACDC Electronics Inc
Airflyte Electronics
Airpax Electronics
Airtronics Inc
Allegri-Tech
Amelco Inc
Ampco Mfg Co
Amphenol Connector Div
Amphenol-Packaged Elx
Applied Electronics
Artronic Instr Co
Atohm Electronics
Automation Dev Corp
Bacon Industries
Beck S Inc
Bendix Radio Div
Bendix York Div
Bernco Engrg Corp
Bulova Research
Burroughs Corp
C and K Components
CTS Corporation
Capitron Div
Centralab Div
Cleveland Metal Spec
Computer Control
Dalmotor Div
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Dukane Corp
Dynage Inc
Electric Regulator
Electronic System Dev
Electropac Inc
Electrosolids Corp
Electrospace Corp
Electronic Products
Engineered Electronics
Erie Resistor
Etching Corp of Calif
Filtron Co
Franklin Systems
GE Apparatus Sales Div
GE Heavy Mil Elx Dept
General Communication
General Instr Corp
Genesys Corp
Graphik-Circuits
Green Rectifier
Hamilton Standard Div
Hathaway Instruments
Hoover Electronics
Hughes Products
International Resistance
Kearfott Div
Link Div
Lockheed Electronics
M-H Military Prods Grp
MacLaren & Co F B
Martin Company
Melabs Inc
Melpar Inc
Micro Gee Products
Microloc Corp
Milton Ross Metals
Molex Products
Natel Engrg Co
Networks Elx Corp
Newton Co
Norbatrol Electronics
North Electric Co
Orion Electronic Corp
Pacific Electro Magnetic
Packard Bell
Paraplegics Mfg Co
Philbrick Researches Inc
Plug-In Instruments Inc
Radiation Inc
Raytheon/Indust Comp
Raytheon/Semiconductor
Regent Controls
Rheem Semiconductor
Rixon Electronics
Rodale Electronics
Rotary Devices Corp
Sierra Research Corp
Solid State Electronics
Speck Electronics
Speed Electronics
Sprague Electric Co
Standard Winding
Summers Gyroscope
Sunshine Scientific
Sylvania Electronic Sys
Technitrol Engrg
Tempo Instrument
Transitron Electronic
Ucinite Co
Ultronix Inc
United Control Systems
Varo Mfg Co
Virginia Electronics
Voi-Shan Electronics
Walkirt Co
Wells Electronics

CLAMPS, Cable, Conduit Tube

Adalet Mfg Co
Airesearch Mfg Co
Alden Products Co
Amatom Electronic
Amphenol Connector Div
Ampco Mfg Co
Birnbach Radio Co
Blaco Mfg Co
Burndy Corp
Commercial Plastics
Electrovert Inc
Gries Reproducer
International Elx Res
Malco Mfg Co
McIlvaine O T
Millen Mfg Co
Nylon Molding
Panduit Corp
Parker-Hannifin Corp
Pyle-National Co
Richco Plastic Co
TA Mfg Corp
Tech Ohm-Resistor
Thomas & Betts Co
Waldom Electronics
Weckesser Co
Wilmington Fibre

CLIPS, Battery (see also Connectors)

Airesearch Mfg Co
Air-O-Tronics Engrg
Ampco Mfg Co
Braun Tool & Inst Co
Cambridge Thermionic
Commercial Plastics
Electro Scientific Ind
Electrovert Inc
Keystone Electronics
Mueller Electric
Rodale Mfg Oco
Tech Apparatus Bldrs
Ucinite Co

CLIPS, Fahnestock

Amatom Electronic
Federal Screw Prods
General Cement
T T Electronics

CLIPS, Fuse, Grid, Test

Barnes Development Co
Birnbach Radio Co
Braun Tool & Inst Co
Bud Radio
Ercona Corp
Goat Co Inc Fred
Industrial Devices Inc
Kolton Electric
Kulka Electric
Millen Mfg Co
Mueller Electric
National Tel-Tronics
Rapid Specialties Co
Raytheon Indust Comp
Speed Electronics
Ucinite Co
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Write for complete catalog

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89 Commerce Road Cedar Grove Essex County N J

CIRCLE 272 ON READER-SERVICE CARD

CLOCKWORKS, Electric including Instrument Drives

Alina Corp
Amglo Corp
Borg Instruments
Bristol Co
Bulova Research
Cramer Div
Edison Industries T A
El Products Corp
Esterline Angus
Geotechnical Corp
Hamilton Watch Co
Haydon Co A W
Haydon Instr Co
Hobbs Corp, John W
Ingraham Co
Micronics Div
Modern Lab Equip
Montgomery Mfg
Natl Time & Signal
Orator Chronograph
Parabam Div
Rockwell Mfg Co
Sangamo Electric Co
Sierra Research Corp
Waltham Precision Instr

CLOCKWORKS, Mechanical, including Instrument Drives

Alina Corp
Borg Instruments
Bristol Co
Bulova Research
Cramer Div
Edison Industries T A
Elgin Natl Watch
Esterline Angus
Geotechnical Corp
Hamilton Watch Co
Haydon Instrument
Hobbs Corp, John W
Ingraham Co
Orator Chronograph
Pacific Transducer Corp
PIC Design Corp
Plumb Co D S
Precision Prods (Tulsa)
Rockwell Mfg Co
Ryan Recording Thermo
Sangamo Electric Co
Sierra Research Corp
Swiss Amer Jewel
Waltham Precision Instr

CLOCKWORKS, Pneumatic including Instrument Drives

Alina Corp
American Meter Co
Haydon Instrument
Rockwell Mfg Co
Sanders Associates

CLUTCHES, Mechanical, Magnetic

Abrams Instrument
Actuator Prods Corp
American Electronics
Beckman/Helipot Div
Bowmar Instrument
Carmody Corp
Cutler-Hammer
Digitronics Corp
Dynamatic Div
Dynamic Instr Corp
Dynex Inc
Electroid Corp
FAE Instrument
General-Electro Mech
Globe Industries
Graphite Metallizing
Guidance Controls Corp
Hamilton Watch Co
Hawk Tool & Engrg
Hodge Controls Div
Hoover Electric Co
Instru-Lec Corp
International-Mechanisms
Intl Powder Metallurgy
Jeffrey Mfg
Kearfott Div
Kinetic Instr Corp
Kollsman Instr Corp
Leemath Inc
M-H Military Prods Grp
Morse Chain Co
Norman Hardy Assoc
Northfield Prec Instr
PIC Design Corp
Precision Mechanisms Corp
Radio Condenser Co
Reeves Instr Corp
Servo-Dynamics Corp
Servo Systems Co
Servotronics Inc
Simplatrol Products
Stearns Electric Corp
Sterling Precision
Technology Instr (Calif)
Technology Instr (Mass)
Ultronix Inc
Universal Match Corp
Valcor Engrg Corp
Vogue Inst Corp
Warner Electric Brake
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COILS, including RF and IF

ACDC Electronics Inc
Aerovox Corp
Aladdin Electronics
Allen Avionics Inc
Barker & Williamson
Bendix Radio Div
Bud Radio
Bulova Watch Co
Burnell & Co
Caddell Burns Mfg
Cambridge Thermionic
Comar Electric
Corning Glass
Coto-Coil Co Inc
Dale Electronics
Dietz Design
Dittmore-Freimuth
Electroid Corp
Essex Electronics
Forbes and Wagner
Fugle-Miller Labs
Gates Radio Co
General Instrument Corp
General Radio
Goslin Electric
Harder Co Donald C
Illumitronic Engrg
JFD Electronics
Johnson Co E F
Miller Co J W
Modelectric Pro
Molded Insulation
Natl Electronics (Wyo)
North Hills Electronics
North Hills Electric
Orion Electronic Corp
P and H Electronics
Polyphase Instr Co
Raytheon/Microwave
Relcoil Products
Servotronics Inc
Standard Winding
Superex Electronics
Sylvania Electronic Sys
Sylvania Lighting Prods
Telectro Industries
Tenco Electronics
Thordarson Meksner
Trak Electronics
Tri-Dex Co
United Transformer
U S Electronics
Valor Instruments
Varo Mfg Co
Virginia Electronics
Waber Electronics
Warren Transformer
Wells Electronics
Wickes Engrg & Constr

COILS, Toroidal

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A P W-Company
Aerovox Corp
Airpax Electronics
Allen Avionics Inc
Barker & Williamson
Basler Electric
Bendix Radio Div
Bulova Watch Co
Burnell & Co
Cambridge Thermionic
Capitron Div
Chicago Std Transformer
Coast Coil
Comar Electric
Communication Access Co
Components Corp
Control Electronics
D and R Ltd
Dale Electronics
Dietz Design
Dittmore-Freimuth
Durakool Inc
EMP Electronics Res Lab
ESC Corp
Electro Networks
Electrodynamic Instr
Essex Electronics
Forbes and Wagner
Freed Transformer
Fugle-Miller Labs
General Instrument Corp
General Radio
Goslin Electric
Gulton Industries
Hamilton Watch Co
Harder Co Donald C
Hathaway Instruments
Interelectronics
JFD Electronics
Kavamil Co
Kelvin Electric
Magnetico Inc
Mercury Transformer
Mico Instr Co
Milro Controls
Milton Ross Metals
Natl Electronics (Wyo)
Norbatrol Electronics
North Electric Co
North Hills Electronics
Pacific Instrument Co
Polyphase Instr Co
Power Controls Div
Precision Inc
Pulse Engrg
Raycom Instr
Raytheon/Microwave
Research Industrial Lab
Rixon Electronics
Sanders Associates
Sangamo Electric Co
Servotronics Inc
Sprague Electric Co
Standard Winding
Sterling Transformer
Sylvania Lighting Prods
Tenco Electronics
Thordarson Meksner
Tobe Deutschmann Corp
Toroids Unlimited
Torwico Electronics
Trak Electronics
Transformers Inc
Tri-Dex Co
United Transformer Corp
Universal Toroid Coil
Valor Instruments
Vari-L Co
Varo Mfg Co
Virginia Electronics
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Wells Electronics
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COILS, Transformer

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Allen Avionics Inc
Amer Meas & Control
Bendix Radio Div
Bulova Watch Co
CTS Corporation
Cambridge Thermionic
Capitron Div
Carruthers & Fernandez
Chicago Std Transformer
Coast Coil
Communication Accessories
Dale Electronics
Dietz Design
Dittmore-Freimuth
Durakool Inc
EMP Electronics Res Lab
Electrodynamic Instr
Electrical Windings
Essex Electronics
Freed Transformer
Fugle-Miller Labs
General Instrument Corp
General Radio
Goslin Electric
Green Rectifier
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Harder Co Donald C
Illumitronic Engrg
Interelectronics
JFD Electronics
Kavamil Co
Kelvin Electric
Mercury Transformer
Miller Co J W
Milro Controls
Modelectric Pro
Natl Electronics (Wyo)
North Electric Co
P and H Electronics
Pacific Instrument Co
Polyphase Instr Co
Prototype Transformer
Pulse Engrg
Raytheon Mircrowave
Relcoil Products
Rixon Electronics
Sangamo Electric Co
Servotronics Inc
Space Products
Standard Electrical Prods
Standard Winding
Sterling Transformer
Sylvania Lighting Prods
Telectro Industries
Tenco Electronics
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Transformers Inc
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Genesys Corp
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Graphite Metallizing
Instr Development Labs
Instruments Inc
Intl Powder Metallurgy
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Pacific Scientific
Poly-Scientific Corp
Rotary Devices Corp
Slip Ring Co of Amer
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Loe Engrg Co
Nester Company
Semi-Elements Inc
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Amphenol Connector Div
Amphenol IP DK Div
Amphenol RF Prods Div
Amphenol Western
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Associated Engineering
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Auto-Swage Products
Automatic Metal Prods
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Barnes Development Co
Bead Chain Mfg Co
Bendix Scintilla Div
Birnbach Radio Co
Buchanan Electl Prods
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Jan Hardware Mfg Co
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Jones Div Howard B
Joy Mfg Co
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Kings Electronics
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Microdot Inc
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Moeller Electric
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Motorola Military Elx
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National Tel-Tronics
North Electric
Pomona Electronics
Precision Connectors
Pyle-National Co
Raytheon/Indust Comp
Revere Corp of Amer
Richards Co Arklay S
Robins Industries
Rodale Mfg Co
Sealectro Corp
Servotronics Inc
Smith Mfg Co Inc
Standard Electric Time
States Company
Superior Electric Co
Switchcraft Inc
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Telechrome Mfg Corp
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Thermo Electric Co
Thomas & Betts Co
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Ucinite Co
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Vector Electronic
Viking Industries
Waldom Electronics
Waltham Horological
Western International
Wood Electric Co

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Amphenol RF Prods Div
Amphenol Western
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Astral Electronics
Automatic Metal Prods
Automation Electronics
Auto-Swage Products
Birnbach Radio Co
Burndy Corp
Cambridge Thermionic
Cannon Electric
Dejur-Amsco Corp
Elco Corp
Ercona Corp
Garde Mfg Co
General RF Fittings
Gorn Electric
Gorn Electronics
Graphik-Circuits
Gulton Industries
Hughes Aircraft
Kulka Electric
Malco Mfg Co
Microdot Inc
Milton Ross Metals
Molded Insulation
Molex Products
National Connector Corp
North Electric
Physical Sciences Corp
Precision Connectors
Raytheon/Industrial Comp
Sealectro Corp
Space Products
Switchcraft Inc
Sylvania Parts Div
Thomas & Betts Co
Ucinite Co
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Viking Industries
Waldom Electronics
Winchester Electronics

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Amphenol Connector Div
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Bead Chain Mfg Co
Beamco Inc
Bishop & Co
Brainin Corp C S
Burndy Corp
Carbone Corp
Deutsch Co
Elco Corp
Electro-Miniatures
Electro Tec Corp
Electronic Parts
Engelhard Industries
Flight Components
Gibson Electric
Gorn Electronics
Graphite Metallizing
Intl Powder Metallurgy
Main & Sons Robt A
Malco Mfg Co
Mallory & Co P R
Metals & Controls Inc
Milton Ross Co
Model Engrg
Molded Insulation
Natl Carbon Co
National Connector Corp
National Tel-Tronics
North Electric Co
Ohio Carbon Co
Precision Connectors
Precision Prods (Tulsa)
Rotary Devices Corp
Stackpole Carbon
Sylvania Parts Div
Telectro Industries
Ucinite Co

CONTROLS, Push-Pull

Arens Controls

CONVERTERS, AC to DC including Rotary

Adage Inc
Airesearch Mfg Co
Allis-Chalmers
Amelco Inc
American Bosch Arma
American Electronics
Amer Television & Radio
Applied Electronics
Arnoux Corp
Automation Dev Corp
Bailey Meter Co
Behlman Engineering
Bergen Labs Inc
Bristol Co
Burton Mfg Co
Capitron Div
Carruthers & Fernandez
Carter Motor Co
Chicago Std Transformer
Consolidated Diesel
Control Electronics
Dalmotor Div
Datalog Div
Daven Co
Davenport Mfg
Daystrom/Weston
DJECO
Dresser Electric Co
Eico Electronic Instr
Eicor Div
Electric Regulator
Electro Instruments
Electro Products Labs
Electro-Seal Corp
Electrodynamic Instr
Electrosolids Corp
Electronic Associates
Electronic Specialty Co
GE Apparatus Sales Div
G E Specialty Control
Gates Electronic
General Devices
General Nuclear Corp
General Radio
Georator Corp
Green Rectifier
Guardian Electric
Gulton Industries Inc
Hastings-Raydist
Hathaway Instruments
Heath Co
Holtzer-Cabot Div
Hoover Electric Co
Hoover Electronics
Houston Instrument Corp
Hydro-Aire Co
Interelectronics
I T T Indust Prods Div
Jack & Heintz Inc
Kato Engrg Co
Kavamil Co
Kearfott Div
Kin Tel
Kinetics Corp
Leach Corporation
Link Div
Liquidometer
Mallory & Co P R
Microdot Inc
Milro Controls
Model Engrg
Model Rectifier
Monitor Systems Inc
Moseley Co F L
Nacimco Products
Non-Linear Systems
North Atlantic Indus
North Electric Co
Ohio Semiconductors
Opad Electric
Ovitron Corp
Perkin Engrg Corp
Permoflux Products
Pesco Products Div
Pioneer Magnetics
Plug-In Instruments Inc
Power Controls Div
Power Sources Inc
Power-Tronic Systems
RCA Systems Support
R S Electronics Corp
Ramapo Instr Co
Sangamo Electric Co
Small Motors Inc
Solid State Electronics
Southwestern Indus Elx
Space Electronics
Speck Electronics
Spectrol Electronics
Sterling Precision
Superior Electric Co
Swartwout Div
Syntron Co
Systron-Donner
Tapco Div
Tech Apparatus Bldrs
Tele-Dynamics Div
Telechrome Mfg Corp
Telectro Industries
Valor Instruments
Varo Mfg Co
Vidar Corp
WE-Gen Purpose Control
Wickes Engrg & Constr
Wincharger Corp

CONVERTERS, DC to AC, including Magnetic and Transistorized

ACDC Electronics Inc
Abrams Instrument
Accurate Instrument
Advanced Electronics
Airesearch Mfg Co
Airpax Electronics
Allis-Chalmers
Alto Scientific
Amelco Inc
American Bosch Arma
American Electronics
Amer Television & Radio
Amglo Corp
Applied Electronics
Arnold Magnetics Corp
Arnoux Corp
Automation Dev Corp
Automation Electronics
Barker & Williamson
Behlman Engineering
Bergen Labs Inc
Brach Mfg
Bristol Co
Burroughs Corp
Capitron Div
Carol Electronics
Carruthers & Fernandez
Chicago Std Transformer
Communication Accessories
Communication Meas Lab
Control Electronics
Cubic Corp
Dalmotor Div
Data Products Co
Datalog Div
Daven Co
Davenport Mfg
Delco Radio
Deltron Inc
Designs for Tomorrow
Dietz Design
DJECO
Dresser Elx/SIE Div
Dymec
Dynage Inc
Dynatronics Inc
Eicor Div
Electric Regulator
Electrodynamic Instr
Electro-Seal Corp
Electronic Specialty Co
Electronic System Dev
Electrosolids Corp
EMP Electronics Res Lab
Freed Transformer
Frontier Elx
General Computers Inc
General Devices
General Electrodynamics
General Magnetics
Georator Corp
Geotechnical Corp
Guardian Electric
Gulton Industries Inc
Gyrex Corp
Hamilton Standard Div
Harrel Inc
Hathaway Instruments
Heath Co
Holtzer-Cabot Div
Hoover Electric Co
Hoover Electronics
Hydro-Aire Co
I T T Indus Prods Div
Industrial Test Equip
Interelectronics
Jack & Heintz Inc
James Vibrapowr Co
Kato Engrg Co
Kavamil Co
Kearfott Div
Kinetics Corp
La Marche Mfg Co
Leach Corporation
Link Div
Liquidometer
M-H Boston Div
Magnetic Controls Co
Magnetic Research Corp
Magnetico Inc
Mallory & Co P R
Marathon Electric
Megadyne Elx
Millivac Instr Inc
Milro Controls
Model Engrg
Modern Industries
Monitor Systems Inc
N Y Transformer
Norbatrol Electronics
Ohio Semiconductors
Opad Electric
Ovitron Corp
Pacific Instrument Co
Parsons Co Ralph M
Perkin Engrg Corp
Permoflux Products
Pesco Products Div
Pioneer Magnetics
Power Controls Div
Power Designs
Power Sources Inc
RCA Systems Support
Rixon Electronics
Sangamo Electric Co
Sierra Research Corp
Small Motors Inc
Solid State Electronics
Sorensen & Co
Space Electronics
Special Instruments Lab
Speck Electronics
Spectrol Electronics
Standard Electric Time
Sterling Precision
Strand Engrg Co
Swartwout Div
Tapco Div
Tech Apparatus Bldrs
Telechrome Mfg Corp
Telectro Industries
Tele-Dynamics Div
Tenco Electronics
Torwico Electronics
United Control Corp
United Electrodynamics
Uniwave Inc
Valor Instruments
Varo Mfg Co
Victory Electronics Inc
Vidar Corp
Voi-Shan Electronics
Westamp Inc
White Avionics Corp
Wickes Engrg & Constr

CONVERTERS, DC to DC, Transistorized

Advanced Electronics
Airesearch Mfg Co
Amelco Inc
American Electronics
Applied Electronics
Arnold Magnetics Corp
Automation Dev Corp
Automation Electronics
Barker & Williamson
Behlman Engineering
Bergen Labs Inc
Brach Mfg
Burroughs Corp
Camera Equipment Co
Capitron Div
Carter Motor Co
Central Scientific
Control Electronics
Data Products Co
Datalog Div
Daven Co
DJECO
Davenport Mfg
Daystrom/Mil Elx
Delco Radio
Dresser Elx/SIE Div
Dynage Inc
Eicor Div
Electric Regulator
Electrodynamic Instr
Electronic Dev Corp
Electronic Specialty Co
Electronic System Dev
Fielden Electronics
Freed Transformer
GE Apparatus Sales Div
General Devices
Guardian Electric
Gulton Industries Inc
Hamilton Standard Div
Hathaway Instruments
Holtzer-Cabot Div
Hoover Electronics
Hydro-Aire Co
Invar Electronics
Jack & Heintz Inc
Kearfott Div
Kinetics Corp
Mallory & Co P R
M-H Military Prods Grp
Martin Company
Megadyne Elx
Milro Controls
Monitor Systems Inc
NJE Corp
Nacimco Products
Natel Engrg Co
Norbatrol Electronics
Opad Electric Co
Ovitron Corp
Pacific Instrument Co
Parsons Co Ralph M
Pesco Products Div
Plug-In Instruments Inc
Power Controls Div
Power Designs
Power Sources Inc
Power-Tronic Systems
RCA Systems Support
Rixon Electronics
Sangamo Electric Co
Schlumberger Corp
Sierra Research Corp
Space Electronics
Spectrol Electronics
Standard Electronics
Strand Engrg Co
Systron-Donner
Tapco Div
Telechrome Mfg Corp
Telectro Industries
Tele-Dynamics Div
Torwico Electronics
Valor Instruments
Varo Mfg Co
Voi-Shan Electronics
WE-Gen Purpose Control
Wickes Engrg & Constr
Wincharger Corp

CONVERTERS, Electric-to-Hydraulic

Amer Meas & Control
Annin Company
Boonshaft and Fuchs
Eastern Industries
GPE Controls
General Devices
Hagan Chem & Controls
Model Engrg
Muirhead Instrs
Pesco Products Div
Power-Tronic Systems
RCA Systems Support
Racine Hydra & Machy
Rucker Co
Telectro Industries
Varo Mfg Co

CONVERTERS, Electric-to-Pneumatic

Annin Company
Associated Control
Bailey Meter Co
Bristol Co
Fielden Electronics
Fischer & Porter Co
Foxboro Company
General Devices
Hagan Chem & Controls
M-H Brown Instrs Div
Manning Maxwell & Moore
Model Engrg
Pesco Products Div
Power-Tronic Systems
RCA Systems Support
Republic Flow Meters
Swartwout Div
System Analyzer Corp
Telectro Industries
Varo Mfg Co

CONVERTERS, Frequency

Abacus Inc
Accurate Instrument
Airesearch Mfg Co
Airpax Electronics
American Electronics
Anadex Instruments Inc
Avtron Manufacturing
Behlman Engineering
Bergen Labs Inc
Bill Jack Scientific
Bogart Mfg
Carter Motor Co
Communication Meas Lab
Control Electronics
Cox Instruments
Dalmotor Div
Datalog Div
Daven Co
Davenport Mfg
Delco Radio
Dittmore-Freimuth
DJECO
Douglas Microwave Co
Eicor Div
Elec Motors & Spec
Electric Regulator
Electro Instruments
Electrodynamic Instr
Electronic Specialty Co
Electronics International
Electrosolids Corp
Entron Inc

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CIRCLE 273 ON READER-SERVICE CARD

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Complete line of instruments for monitoring purity values in gas streams and for wide application in gas impurity analysis.

Industrial Instruments Inc.
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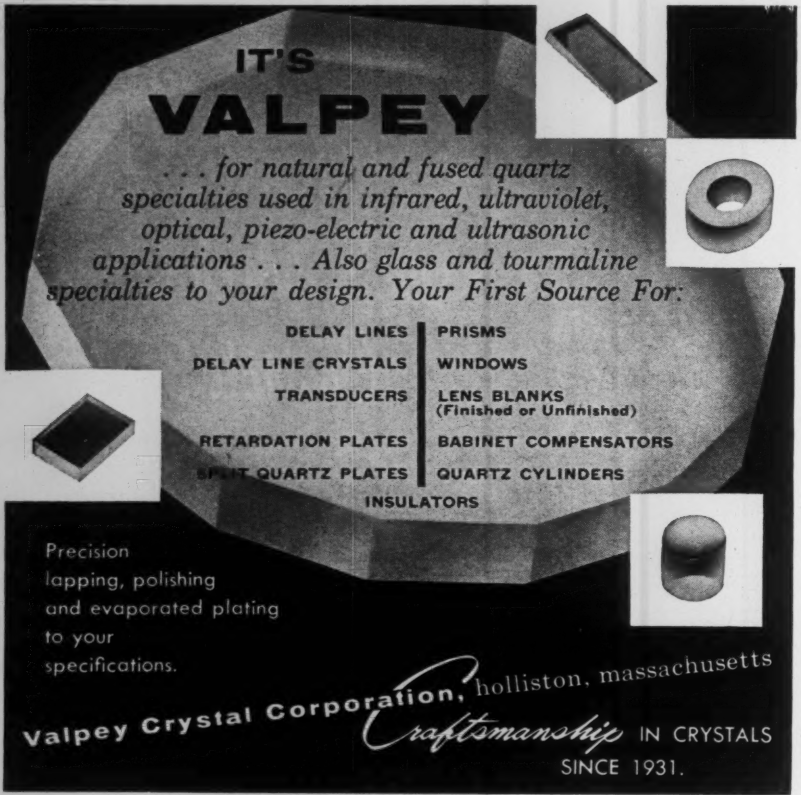
CIRCLE 274 ON READER-SERVICE CARD



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CIRCLE 275 ON READER-SERVICE CARD

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MONITOR

Scans and monitors equipment temperatures from thermocouple inputs, and will also accommodate inputs from flow, pressure etc. Rack mounted, the Hagan Kybernetes Indicator Monitor has these features:

- Continuous alarm scanning at the rate of 5 points per second.
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- Alarm scanning not interrupted during readout on the T.I.
- Unaffected by variations in thermocouple lead lengths.
- Operational check for all circuits.

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European Division: Via Flumendosa No. 13, Milano, Italy

CIRCLE 276 ON READER-SERVICE CARD

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Frequency Standards
GE Apparatus Sales Div
General Devices
Geotechnical Corp
Gertsch Products Inc
Gulton Industries Inc
Hamilton Standard Div
Houston Instrument Corp
Howell Instrs
I T T Indus Prods Div
International Elx Res
Industrial Test Equip
Interelectronics
Jack & Heintz Inc
Kato Engrg Co
Kavamil Co
Kearfott Div
M-H Apparatus Contls Div
Mallory & Co P R
Marathon Electric
Microdot Inc
Milro Controls
Model Engrg
Monitor Systems Inc
Nacimco Products
Ovitron Corp
P and H Electronics
Perkin Engrg Corp
Permoflux Products
Pesco Products Div
Pioneer Magnetics
Power Controls Div
Power Sources Inc
Power-Tronic Systems
RCA Systems Support
Radio Frequency Labs
Riverbank Labs
Rixon Electronics
Robbins & Myers
Sorensen & Co
Space Electronics
Spectrol Electronics
Sprague Engineering
Sterling Precision
System Analyzer Corp
Systron-Donner
Tapco Div
Tech Apparatus Bldrs
Telectro Industries
Tel-Instrument Elx
Valor Instruments
Varo Mfg Co
Waugh Engineering Co
Westamp Inc
Wickes Engrg & Constr

CONVERTERS, Rotary, DC to AC

American Electronics Inc
Airesearch Mfg Co
Allis-Chalmers
Applied Electronics
Bill Jack Scientific
Carter Motor Co
Dalmotor Div
Eicor Div
Electric Regulator
Electronic Specialty Co
GE Apparatus Sales Div
General Devices
Globe Ind
Holtzer-Cabot Div
Hoover Electric Co
Interelectronics
Jack & Heintz Inc
Kato Engrg Co
Kearfott Div
Marathon Electric
Milro Controls
Model Engrg
Ovitron Corp
Permoflux Products
Pesco Products Div
Sangamo Electric Co
Sterling Precision
System Analyzer Corp
Tapco Div
Tech Apparatus Bldrs
Telechrome Mfg Corp
Telectro Industries
Varo Mfg Co
Wincharger Corp

CONVERTERS, Vibrator, DC to AC

Airpax Electronics
Amer Television & Radio
Applied Electronics
Bristol Co
Brusnwick Instruments
Collins Electronics
Fork Standards
General Computers Inc
General Devices
General Radio
Green Rectifier
ITT Industrial Products
Interelectronics
M-H Brown Instrs Div
M-H Fall River Div
Mallory & Co P R
Milro Controls
Milton Roy Co
Model Engrg
Oak Mfg Co
Ovitron Corp
Servo Systems Co
Solid State Electronics
Stevens-Arnold
System Analyzer Corp
Tech Apparatus Bldrs
Telechrome Mfg Corp
Telectro Industries
Varo Mfg Co

COUPLINGS, FLEXIBLE, including Miniature

Belfab Corp
Bendix Utica Div
Boston Gear Works
Bridgeport Thermostat
Bud Radio
Dittmore-Freimuth
Falcon Division
Ford Instr
Hi-Lo Mfg Co
Instru-Lec Corp
Jan Hardware Mfg Co
Jeffrey Mfg
Johnson Co E F
Kenett Corp
Kinemotive Corp
Lovejoy Flex Coupling
Lord Mfg Co
Metron Instrument
Morse Chain Co
Naugler Engineering
Perfecting Service Co
Philadelphia Gear Corp
Reeves Instr Corp
Renbrandt Inc
Research Products Co
Santa Fe Instruments
Servometer Corp
Technology Instr (Mass)

CRYSTAL DIODES

Amperex Electronic
British Industries
CBS Electronics
Clevite Transistor Prods
Controls Co of America
Erie Resistor
General Instr Corp
Green Rectifier
Gulton Industries
Hughes Products
Hughes Semiconductor
Intelex Systems Inc
International Rectifier
Microwave Associates
M-H Military Prods Grp
Ohmite Mfg Co
Pacific Semiconductors
Philco/Lansdale
Raytheon/Semiconductor
Semi-Elements Inc
Somerset Radiation Lab
Sylvania Semiconductor
Tech Apparatus Bldrs
Transitron Electronic
Trans-Sil Corp

CRYSTAL ELECTRODES

Gulton Industries

CRYSTAL GROWING EQUIPMENT

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Edmund Scientific Co
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Induction Heating
Kahle Engineering Co
Leeds & Northrup
Lepel High Frequency Labs
Lindberg Engrg Co
NRC Equipment
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Reeve Electronics

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Bogart Mfg Corp
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Demornay-Bonardi
Diamond Antenna
Dittmore-Freimuth
Douglas Microwave Co
Elco Corp
General Microwave Corp
Grayhill Inc
Microphase Corp
Microwave Associates
Narda Microwave Corp
Nuclear-Chicago
Premier Res Labs
Sage Laboratories
TRG Inc
Telectro Industries
United Shoe Machinery
Waldom Electronics
Warren Components

CRYSTALS, Barium Titanate

Centralab Div
Erie Resistor
Gulton Industries
M-H Ceramics Lab
M-H Military Prods Grp
Princeton Div
Semi-Elements Inc

CRYSTALS, Semiconductor

CBS Electronics
Clevite Transistor Prods
Dow Corning Corp
Gulton Industries
Hughes Products
Instrument Systems Corp
Intelex Systems Inc
Keithley Instruments Inc
Kemtron Electron Prod
Microwave Associates
Philco/Lansdale
Premier Res Labs
RCA Defense Electronic
Raytheon/Semiconductor
Republic Lens Co
Semi-Elements Inc
Sylvania Chemical
Sylvania Semiconductor
Transitron Electronic
Trans-Sil Corp

CRYSTALS, Piezoelectric

Bliley Electric
Bulova Research
Bulova Watch Co
Cambridge Thermionic
Centralab Div
Federated Electronics
GE Heavy Mil Elx Dept
Gulton Industries
Hill Electronics
Keithley Instruments Inc
M-H Ceramics Lab
M-H Military Prods Grp
McCoy Electronics
Miller Labs
Peizo Crystal Co
Premier Res Labs
Reeves-Hoffman Div
Semi-Elements Inc
U S Sonics Corp
Valpey Crystal Corp

CRYSTALS, Quarts, Rochelle Salt

Andersen Labs
Bliley Electric Co
Bulova Research
Gulton Industries
Herron Optical
Hill Electronics
Hughes Aircraft
M-H Military Prods Grp
Miller Labs
Peizo Crystal Co
Premier Res Labs
Republic Lens Co
Semi-Elements Inc
Valpey Crystal Corp

CRYSTALS, Rock Salt, Optical

Federated Electronics
Palos Optical Co
Perkin-Elmer Corp
Republic Lens Co
Semi-Elements Inc
Valpey Crystal Corp

CRYSTALS, Tourmaline

M-H Military Prods Grp
Miller Labs
Premier Res Labs
Semi-Elements Inc
Valpey Crystal Corp

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Artronic Instrument
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Bendix York Div
Bliley Electric Co
Brew & Co Richard
Burnell & Co
Burroughs Corp
Capitron Div AMP
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Computer Control
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Corning Glass
Daven Co
Deltime Inc
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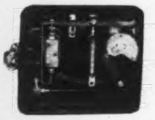

Relay positions pneumatic power unit (valve or drive) to control requirements as received from control station. Includes cam adjustment for tuning power unit characteristics to system characteristics at job site. As a Position Transmitter it develops a pneumatic signal in a predetermined relationship to position of a regulating device. Request Specs P99-5 and P99-10 for details.

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Polyphase Instr Co
Power Tronic Systems
Raytheon/Industrial Comp
Rixon Electronics
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RKL Valve & Mfg
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Warren Automatic Control
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Kieley & Mueller
Kinemotive Corp
Servometer Corp
U S Gauge Div
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British Industries
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Erie Resistor
GE Semiconductor
General Instr Corp
Green Rectifier
General Transistor
Hughes Products
Hughes Semiconductor
Intelex Systems Inc
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Ohmite Mfg Co
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Raytheon/Semiconductor
Semi-Elements Inc
Sylvania Semiconductor
Tech Apparatus Bldrs
Transitron Electronic
WE-Semiconductor

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Amperex Electronic
British Industries
Britton Electronics
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Controls Co of America
Erie Resistor
Fairchild Semiconductor
Fansteel Metallurgical
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Nucleonic Prods
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Syntron Co
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Tyco Inc
Unitrode Transistor
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Rantec Corp
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Stackpole Carbon
Sylvania Electronic Tube
T T Electronics
TRG Inc

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Airtron Div
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Dietz Design
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General Microwave Corp
General Radio
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Gulton Industries Inc
Gyrex Corp
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Hill Electronics
Hughes Products
Industrial Transformer
Instruments for Industry
JFD Electronics
Kavamil Co
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Kelvin Electric
Kennedy & Co D S
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McCoy Electronics
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Melabs Inc
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Microwave Associates
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Lynn Robert M
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TRG Inc
Technical Products Co
Telectro Industries
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FILTERS, Frequency (see also Noise Filters)

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Allen-Bradley
Allied Witan Co
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Ark Electronics
Astron Corp
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Frequency Standards
General Electronic Labs
General Microwave Corp
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Hughes Products
Instruments for Industry
JFD Electronics
Kane Engineering Labs
Kelvin Electric
Lynch Communication
Lynn Robert M
McCoy Electronics
McMillan Electronic
Merit Coil & Transformer
Microphase Corp
Muirhead Instrs
New England Instr
Newport Scientific Co
North Hills Electric
Ortho Filter Corp
P C A Electronics
P and H Electronics
Pacific Instrument Co
Penn-East Engrg Corp
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Raytheon/Indust Comp
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Rixon Electronics
San Fernando Electric
Sangamo Electric Co
Security Devices Lab
Spectrum Instruments Inc
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T T Electronics
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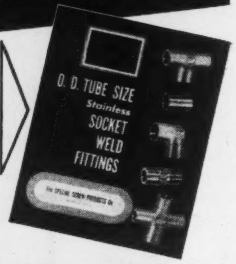

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OPW-Jordan
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Snap Tite Inc
Special Screw Products
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Weatherhead Co
Weatherhead, Ft Wayne

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Bastian Blessing Co
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Crawford C B
Crawford Fitting Co
Crucible Steel
Dragon Engrg Co
Flodar Corp
Grinnell Co
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Kahn and Co Inc
Parker-Hannifin Corp
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Gombos Co, John
Nicholson & Co W H
Parker Seal Co
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Littelfuse Inc
Microlectron Inc
Thermal Controls Inc

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Fischer & Porter Co
GRS Corp
Greiner Glassblowing
Hughes Aircraft
JFD Electronics
Lancaster Glass Corp
Manning Maxwell & Moore
Nester Company
Philadelphia Scien Glass
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Plumb Co D S

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Hamilton Watch Co
Hathaway Instruments
Howell Instrs
Illinois Testing Labs
Leeds & Northrup
M-H Heiland Div
M-H Rubicon Div
Massa Div
Offner Electronics
Photron Instr Co
Sanborn Co o
Sensitive Research Inst
Shallcross Mfg Co
Simpson Electric
Southwestern Indus Elx
Sprengnether Instr
Sun Electric Corp
Taper Micrometer
Thermo Electric Co
Winslow Electronics Inc

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Bendix Utica Div
Buffalo Meter Co
Dynex Inc
Gear Specialties
Instru-Lec Corp
Plumb Co D S
Tech-Ohm Resistor
U S Gear Corp
Waldom Electronics

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Angler Industries
Asam Mfg Co
Atlas Precision Prods
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Morse Chain Co
New England Gear Works
Newton Co
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Perfecting Service Co
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Planet Instrument
Plumb Co D S
Precision Mechanisms
Precision Prods (Tulsa)
Quaker City Gear Works
Reeves Instr Corp
Rotating Components Inc
Royal Industries
Ryan Recording Thermo
Seegers Mfg
Servo Systems Co
Sierra Engineering
Superite Instrument
Sterling Precision
Swiss Amer Jewel
Tech-Ohm Resistor
U S Gear Corp
Vemaline Products
Vinco Corp
Vogue Instrument
Waldom Electronics
Waltham Precision Instr
Western Gear Corp
Zagora Gear Products
Zero Max Co

HARDWARE, Instrument and Electronic Equipment, including Chassis, Handles, Hinges, Keys, Knobs, Legs, Locks

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Alpitec Inc
Amatom Electronic
Amco Engrg Co
Ampco Mfg Co
Angler Industries
Argonaut Asso
Artisan Metal Works
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Beckman/Helipot Div
Birnbach Radio Co
Braun Tool & Inst Co
Bud Radio

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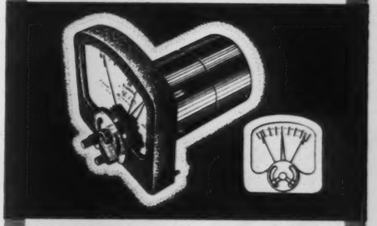

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Corbin Cabinet Lock
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Federal Screw Products
Garde Mfg Co
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Hoover Electronics
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Jan Hardware Mfg Co
Kurz-Kasch Inc
Lerco Div
Lignum Vitae Prods
Link Div
Microdot Inc
Millen Mfg Co
Milton Ross Metals
Muirhead Instrs
Natl Radiac
National Tel-Tronics
Pacific Transducer Corp
PIC Design Corp
Plug-In Instruments Inc
Pomona Electronics
Radiaphone Co
Radio Frequency Labs
Raytheon/Indust Comp
Rogan Brothers
Simmonds Aerocessories
Space Products
Standard Screw Co
Theta Instrument
Vector Electronic
Vemaline Products
Vogue Inst Corp
Waldom Electronics
Waters Mfg Inc
Weckesser Co
Western Devices Inc
Winslow Electronics Inc

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American Lava Corp
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Amphenol Connector Div
Amphenol IP DK Div
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Ceramaseal Inc
Ceramatronics
Continental Sensing
Coors Porcelain
Custom Comp Switches
Dage Electric Co
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Electro-Seal Corp
Electronic Seals
Ercona Corp
Escon Inc
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Glass Instruments Inc
Glasseal Prods Co
Hermetic Seal Corp
ITT Components Div
Isotronics Inc
Kahle Engineering Co
Kearfott Div
Kinemotive Corp
M-H Ceramics Lab
Martin & Co H S
Milton Ross Metals
Mycalex Corp of Amer
Networks Elx Corp
Philadelphia Scien Glass
Philips Electronic
Physical Sciences Corp
Porter Inc Geo K
Richfield Coined Prods
Saxonburg Ceramics
Sealtron Corp
Sylvania Electronic Tube
Thor Ceramics Inc
Tronex Inc
United Aircraft Prods
Universal Match Corp
Vacuum Ceramics
Warren Components

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Ampco Mfg Co
Birnbach Radio Co
Centralab Div
Ceramaseal Inc
Ceramatronics
Consol Electrodynamics
Corning Glass
Dittmore-Freimuth
Du-Co Ceramics
Elco Corp
GRS Corp
General Ceramics
Gordon Co Claud S
High Temperature Instrs
Industrial Sapphire
Jan Hardware Mfg
Johnson Co E F
Lancaster Glass Corp
M-H Ceramics Lab
McDanel Refractory
Milton Ross Metals
Mycalex Corp of Amer
Precision Metal Prods
Raytheon/Microwave
Richards Co, Arklay S
Saxonburg Ceramics
Superior Steatite & Cera
Thor Ceramics Inc
United Mineral & Chem
Vacuum Ceramics
Worley Jewel Co

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Applied Instruments Inc
Asam Mfg Co
Bache & Co Semon
Bird & Co Richard
Gatti Inc Aurele M
GE Apparatus Sales Div
Hamilton Watch
Industrial Jewel Bearing
Industrial Sapphire
Keller Hugo P
Lynn Robert M
Metzger Co Claude
Newall Mfg Co
Sandy Mfg Co
Swiss Jewel Co
Vallorbs Jewel Co
Waltham Precision Instr
Worley Jewel Co

KERR CELLS

Avco Corp
Circo Ultrasonic
Glass Instruments Inc

LENSES, Bullseyes, not Optically Ground

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Applied Instruments Inc
Bache & Co Semon
Commercial Optical
Dialight Corp
Drake Mfg Co
Dynex Inc
Eastman Kodak
Eder Instrument
Engelhard Hanovia
GRS Corp
Goerz Amer Optical
Gordon Enterprises
Lancaster Glass Corp
Lynn Robert M
Photomation Inc
Plummer & Kershaw
Sterling Glass Corp
Tinsley Labs
Varo Mfg Co

LENSES, Low Reflecting Surfaces

Acme Industrial Co
ALFA-American Corp
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Askania-Werke
Bache & Co Semon
Bausch & Lomb
Berger & Sons C L
Buff & Buff Mfg
Buhl Optical Co
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Bushnell & Co D P
Coast Instrument
Commercial Optical
Corning Glass
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Dearborn Glass Co
Diffraction Limited
Dynex Inc
Edmund Scientific
Engelhard Hanovia
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Goerz Amer Optical
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Jaegers Optical Corp
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Lerma Engrg Corp
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O & S Research Inc
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Pacific Universal Prods
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Pancro Mirrors Inc
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Plummer & Kershaw
Renick Co L C
Republic Lens Co
Servo Corporation
Simpson Optical Mfg Co
Spectracoat
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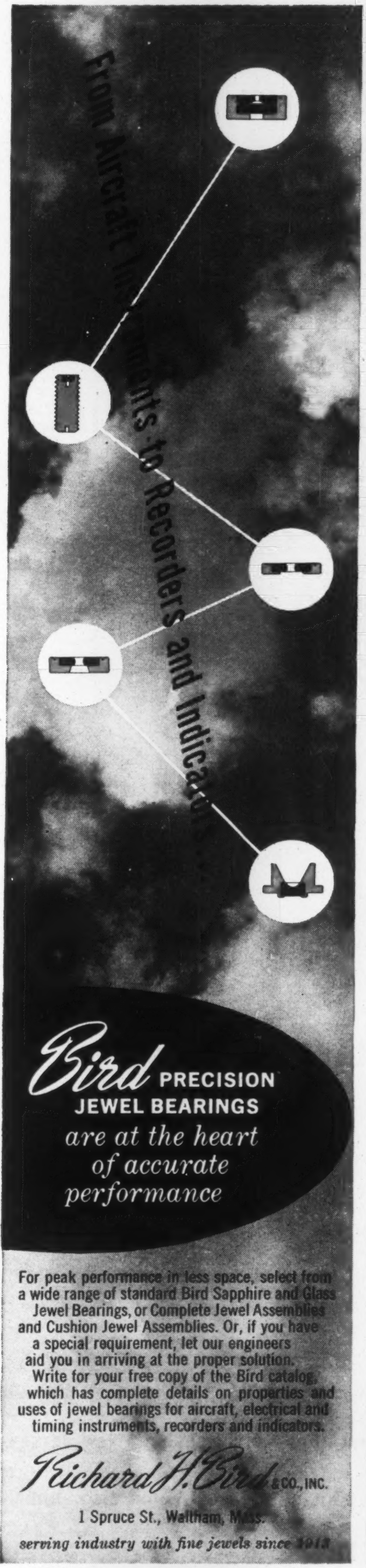

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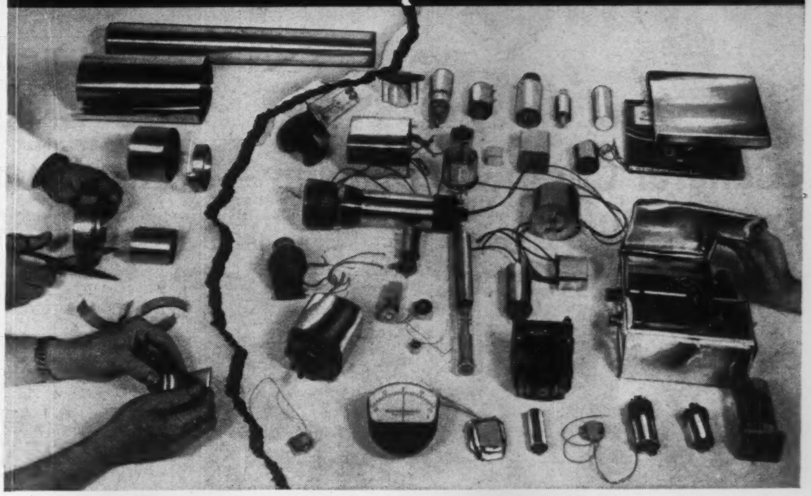
CO-NETIC & NETIC
Magnetic Shielding Foils
For Any Size or Shape Components



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HOW TO INCREASE RELIABILITY

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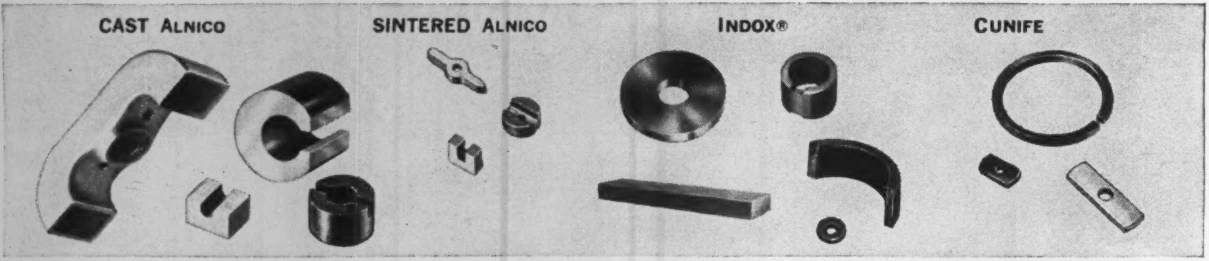
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INDOX®
CUNIFE

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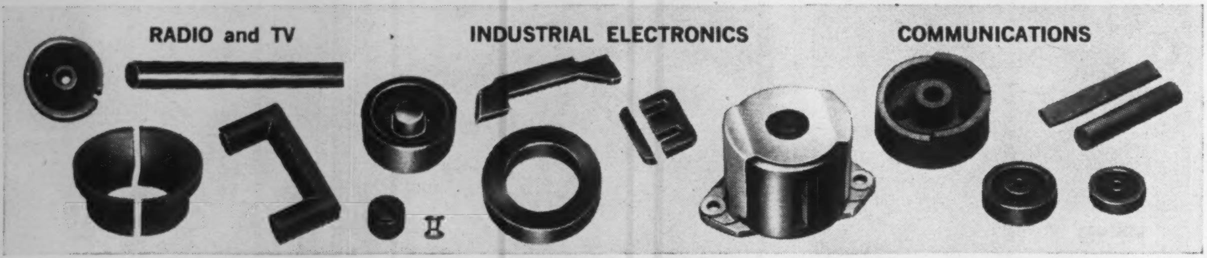
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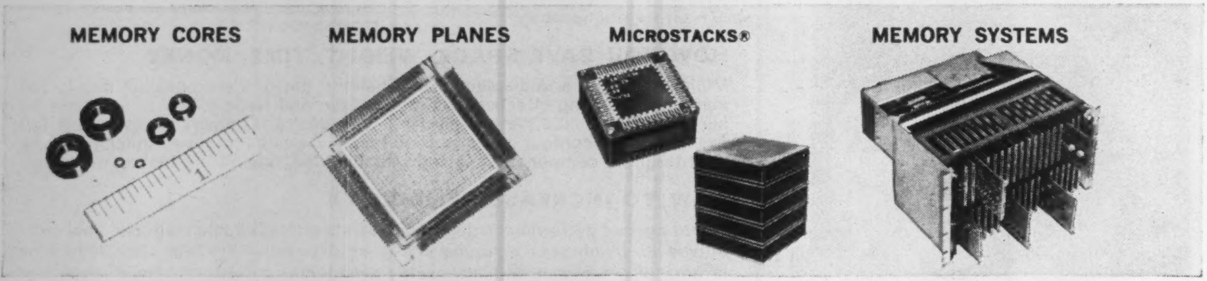
COMMUNICATIONS

General Ceramics Division — MEMORY PRODUCTS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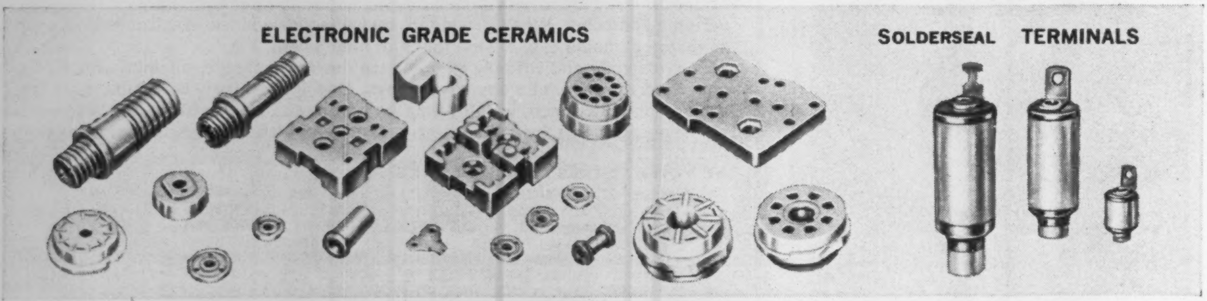
General Ceramics Division — TECHNICAL CERAMICS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MAGNETS, Permanent

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G E Magnetic Materials
Hamilton Watch Co
Indiana General Corp
Indiana Steel Prods
Instrument Systems Corp
Permag Corp
Permanent Magnet Co
Sensitive Research Instr
Spring Specialty
Stackpole Carbon
Thomas & Skinner Inc

MAGNIFIERS, Binocular Head-Loupe Type

Bausch & Lomb
Edmund Scientific Co
Edroy Products Co
Ercona Corp
Graf-Apsco Co
Stocker & Yale Inc
Varo Mfg Co

MARKERS, Pipe and Wire

Ackerman-Gould
Acromark Co
Anodyne Inc
Automark Marking Equip
Brady Co W H
Electrovert Inc
Mathews & Co
North Shore Nameplate
Seton Name Plate
Stafford Mfg
Westline Products Div

MARKING DEVICES

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Acromark Co
Brady Co W H
Cunningham Co M E
Electrovert Inc
Esterbrook Pen
Etching Co of Calif
Mark-Tex Corp
Mathews & Co
Parker-Hartford Corp
Royson Engrg Co
Seton Name Plate
Spring Specialty
Preis Engraving
Ultra-Violet Prods
Westline Products Div

MICROPHONES

Altec Lansing Corp
B and K Instruments
Buhl Optical Co
Dyna-Empire Inc
General Cement
Electro-Voice Inc
Ercona Corp
General Radio
Gulton Industries Inc
Kellogg Switchboard
Massa Div
Photocon Research
R C A Defense Electronic
RCA Industrial Elx
Shure Brothers
Stromberg-Carlson Co
Telectro Industries

MIRRORS, Front Surface

Acme Scientific Co
Applied Instruments Inc
Bache & Co Semon
Bausch & Lomb
Buhl Optical Co
Coast Instrument Inc
Commercial Optical
Curtis Labs
Davidson Optronics
Diffraction Limited
Eastman Kodak
Edmund Scientific
Engis Equipment
Filmohm Corp
Fish-Schurman Corp
GRS Corp
Gaertner Scientific Corp
Gordon Enterprises
Green Rectifier
Gurley W & L E
Jones Optical A D
Keim Precision Mirrors
Keuffel & Esser
Kollsman Instr Corp
Lancaster Glass Corp
Leroy M E Clausing
Lynn Robert M
Magnetic Devices Inc
Milton Roy Mfg Co
Nortronics
O M I Corp
Optical Coating Lab
Optron Lab
Pacific Universal Prods
Palos Optical Co
Pancro Mirrors Inc
Penn Optical & Instr
Plummer & Kershaw
Renick Co L C
Republic Lens Co
Simpson Optical Mfg Co
Spectracoat
Sterling Glass Corp
Tiffen Optical
Tinsley Labs
Unertl Optical Co
Varo Mfg Co
Wollensak Optical
Zenith Optical Lab

MIRRORS, Instrument

Acme Scientific Co
American Optical Co
Applied Instruments Inc
Bache & Co Semon
Bausch & Lomb
Buhl Optical Co
Coast Instrument
Commercial Optical
Curtis Labs
Davidson Optronics
Dixon Inc William
Edmund Scientific
Engis Equipment
Filmohm Corp
GRS Corp
Gaertner Scientific Corp
Gordon Enterprises
Jones Optical A D
Keim Precision Mirrors
Keuffel & Esser
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Lynn Robert M
Milton Roy Mfg Co
Nortronics
O M I Corp
Optical Coating Lab
Optron Lab
Pacific Universal Prods
Palos Optical Co
Penn Optical & Instr
Perkin-Elmer Corp
Plummer & Kershaw
Renick Co L C
Republic Lens Co
Simpson Optical Mfg Co
Sterling Glass Corp
Tiffen Optical
Tinsley Labs
Varo Mfg Co
Wollensak Optical
Zenith Optical Lab
Zoomar Inc

MIRRORS, Semi-Transparent

Acme Scientific Co
Applied Instruments Inc
Bache & Co Semon
Bausch & Lomb
Buhl Optical Co
Commercial Optical
Curtis Labs
Davidson Optronics
Edmund Scientific
Engis Equipment
Filmohm Corp
Gaertner Scientific Corp
Gordon Enterprises
Green Rectifier
Gurley W & L E
Jones Optical A D
Keim Precision Mirrors
Keuffel & Esser
Kollsman Instr Corp
Lancaster Glass Corp
Leroy M E Clausing
Milton Roy Co
National Tel-Tronics
Nortronics
O M I Corp
Optical Coating Lab
Optron Lab
Pacific Universal Prods
Palos Optical Co
Pancro Mirrors Inc
Penn Optical & Instr
Plummer & Kershaw
Renick Co L C
Republic Lens Co
Simpson Optical Mfg Co
Sterling Glass Corp
Tiffen Optical
Tinsley Labs
Varo Mfg Co
Wollensak Optical
Zenith Optical Lab

MONOCHROMATORS, Including Infrared

Acme Scientific Co
Applied Instruments Inc
Bausch & Lomb
Cambridge Thermionic
Diffraction Limited
Diffraction Prod
Engis Equipment
Ercona Corp
Gaertner Scientific Corp
Hughes Aircraft
Infrared Industries
National Spectrographic
Perkin-Elmer Corp
Phoenix Precision Instr
Process & Instruments
RCA Industrial Elx
Servo Corporation
Tiffen Optical
Varo Mfg Co
Zeiss Inc Carl

MOTORS, Fractional Horsepower including Reversible and/or Synchronous

Acro Division
Advanced Products
Air Marine Motors
Airborne Accessories
Airesearch Mfg Co
Allen Business Machines
American Bosch Arma
American Electronics
Amglo Corp
Ashland Electric
Automation Dev Corp
Barber-Colman
Bekey Electric Div
Bendix Eclipse-Pioneer
Bendix Montrose Div
Bill Jack Scientific
Bodine Electric
Boehm Co R A
Borg Instruments
Borg Equipment Div
Brevel Products Corp
Carter Motor Co
Controls Co of Amer
Cramer Div
Curvin Dev Co
Dale Electronics
Dalmotor Div
Decker Corp
Delco Products
Dumore Co
Eastern Air Devices
Edison Industries T A
Eicor Div
Electric Autolite
Electric Indicator Co
Electronic Specialty Co
Fairbanks-Morse
Fasco Industries Inc
Franklin Electric
GE Apparatus Sales Div
G E Specialty Control
General Controls
General Industries
General Railway Signal
Genisco Inc
Giannini Controls Corp
Globe Industries
Hagen Mfg Co
Haydon Co A W
Haydon Instr Co
Hodge Controls Div
Holtzer-Cabot Div
Hoover Electric Co
Howard Industries Inc
Hydro-Aire Co
IMC Magnetics
Ingraham Co
Intelex Systems Inc
Jack & Heintz Inc
Kearfott Div
Kinetic Instr Corp
L and R Mfg Co
Lamb Electric
Land-Air Inc
Lundy Mfg Corp
M-H Brown Instrs Div
Marathon Electric
McLean Engrg Labs
Merkle-Korff Gear
Muirhead Instrs Inc
Oster Mfgrg John
Pesco Products Div
Redmond Co
Reflectone Electronics
Reliance Elect & Engrg
Robbins & Myers
Rotating Components Inc
Sangamo Electric Co
Servo-Dynamics Corp
Servo-Tek Prod
Servomechanism Inc
Small Motors Inc
Smith Corp A O
Sperry Gyroscope
Summers Gyroscope
Superior Electric Co
Telectro Industries
Teller Co
U S Electrical Motors
Varo Mfg Co
Waltham Precision Instr
Western Design
Western Gear Corp
Wright Machinery Co

MOTORS, Synchronous

Advanced Products
Air Marine Motors
Airesearch Mfg Co
Alina Corp
Allen Business Machines
Allis-Chalmers
American Bosch Arma
American Electronics
Amglo Corp
Ashland Electric
Automation Dev Corp
Barber-Colman
Beckman/Helipot Div
Bekey Electric Div
Bill Jack Scientific
Bodine Electric
Borg Instruments
Borg Equipment Div
Cedar Engrg Div
Clifton Precision
Controls Co of America
Cramer Div
Curvin Dev Co
Dale Electronics
Dalmotor Div
Decker Corp
Eastern Air Devices
Edison Industries T A
Eicor Div
Electric Indicator Co
Electronic Specialty Co
Fairbanks-Morse
Fasco Industries Inc
GE Apparatus Sales Div
GE Clock & Timer
Genisco Inc
Giannini Controls Corp
Gleason Avery Inc
Globe Industries
Hagen Mfg Co
Hansen Mfg Co
Harowe Servo Controls
Haydon Co A W
Holtzer-Cabot Div
Hoover Electric Co
Howard Industries Inc
Hurst Mfg Corp
Hydro-Aire Co
IMC Magnetics
Ingraham Co
Kearfott Div
Kinetic Instr Corp
Lamb Electric
Land-Air Inc
Luther Mfg Co
M-H Brown Instrs Div
Marathon Electric
McLean Engrg Labs
Merke-Korff Gear
Muirhead Instrs Inc
Oster Mfgrg John
Pesco Products Div
Reliance Elect & Engrg
Robbins & Myers
Rotating Components Inc
Sangamo Electric Co
Servo-Dynamics Corp
Servo-Tek Prod
Servomechanism Inc
Small Motors Inc
Smith Corp A O
Sperry Gyroscope
Superior Electric Co
Telectro Industries
Teller Co
Times-Facsimile
U S Electrical Motors
Varo Mfg Co
Waltham Precision Instr
Western Design
Western Gear Corp
Wright Machinery Co

MOTORS, Torque

Aeroflex Corp
Air Marine Motors
Airborne Accessories
Airesearch Mfg Co
Allis-Chalmers
American Bosch Arma
American Electronics
Amer Meas & Control
Ashland Electric
Automation Dev Corp
Barber-Colman
Bendix Eclipse-Pioneer
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Midwestern Instrs
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Redmond Co
Reliance Elect & Engrg
Rotating Components Inc
Servomechanism Inc
Servo-Tek Prod
Servotronics Inc
Sigma Instruments
Sperry Gyroscope
Summers Gyroscope
Telectro Industries
Teller Co
U S Electrical Motors
Varo Mfg Co
Western Gear Corp

MOTORS, Undirectional, Small AC

Advanced Products
Air Marine Motors
Airborne Accessories
Airesearch Mfg Co
American Electronics
Amglo Corp
Ashland Electric
Barber-Colman
Bendix Eclipse-Pioneer
Bill Jack Scientific
Bodine Electric
Boehm Co R A
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Cramer Div
Curtiss Wright
Curvin Dev Co
Dalmotor Div
Decker Corp
Diehl Mfg Co
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Eastern Air Devices
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Electric Autolite
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General Industries
Genisco Inc
Gleason Avery Inc
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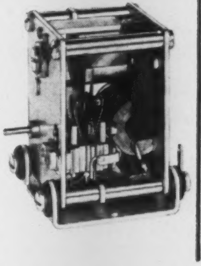

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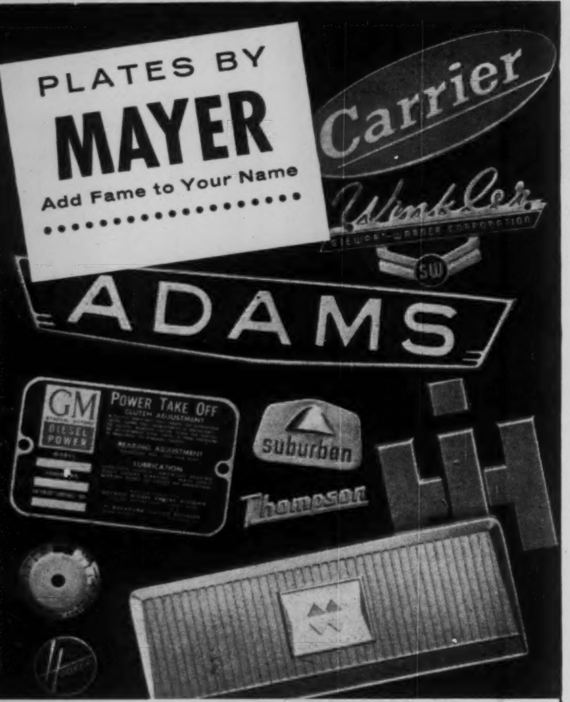

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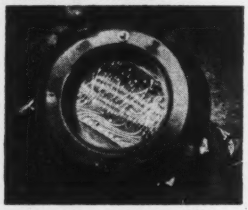

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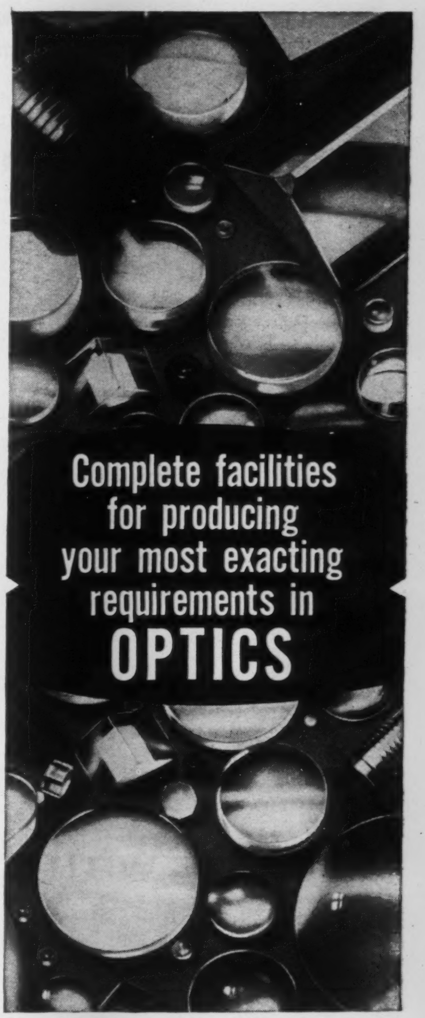

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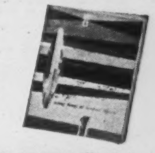

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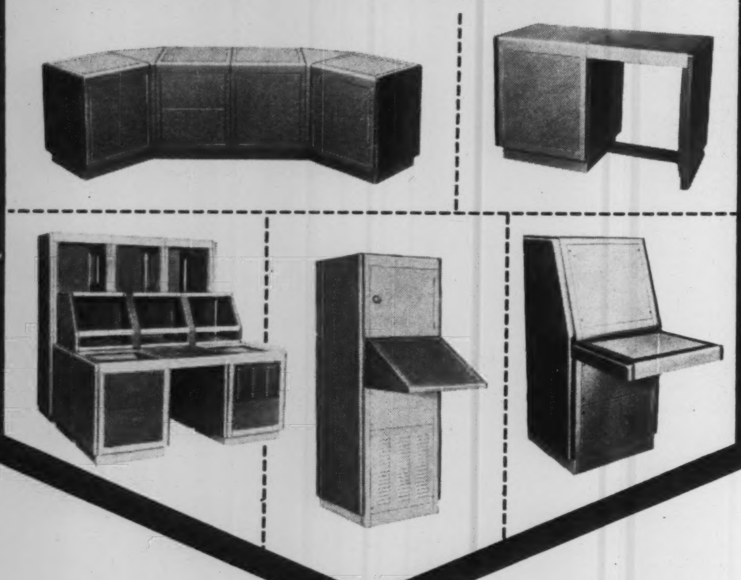

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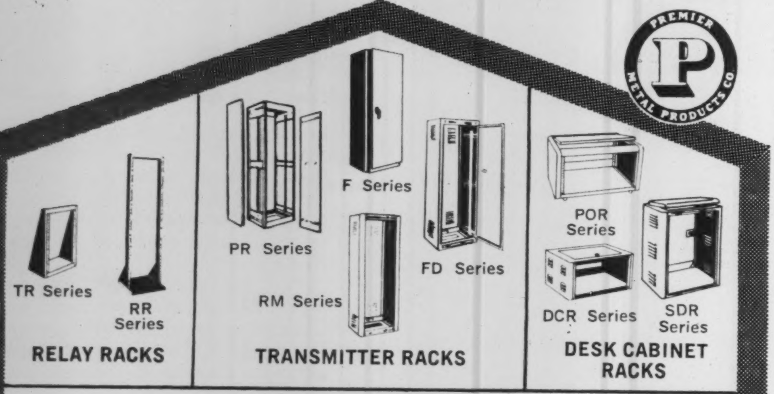

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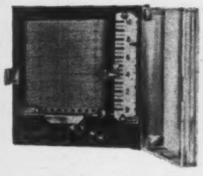

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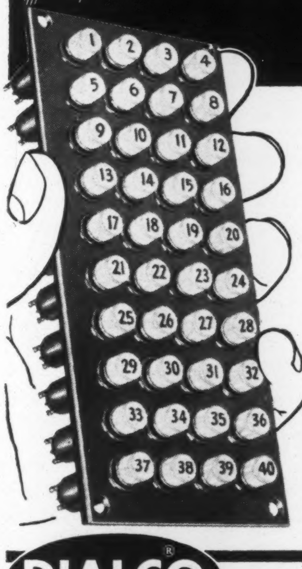

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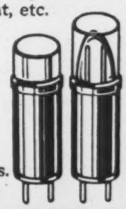

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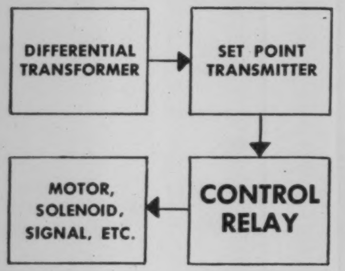

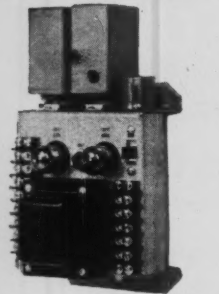

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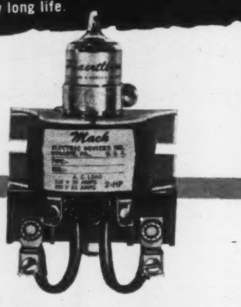

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*Du Pont trade name for Tetrafluoroethylene Resin

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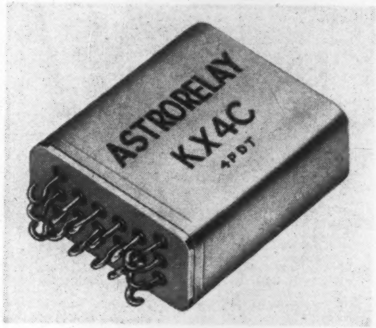

Brooklyn 22, N. Y. The smallest and lightest series of 4 POLE DOUBLE THROW RELAYS featuring high shock-vibration immunity, extreme reliability, low input power consumption, and meeting all the requirements of MIL-R-5757D, have been designed and made available by Kurman Electric Company, a Subsidiary of Crescent Petroleum Corp. This new Space-Age Relay, the Astrorelay, weighs approximately 1/2 oz., and meets the rugged demands of the missile and computer field.

This unique 4 Pole Double Throw microminiature relay, not larger than a postage stamp and the same size as Kurman KX-2C, offers excellent vibration immunity 30 G's 10-5000 CPS; 40 G's 10-2000 CPS. Special versions are available featuring vibration immunity of 50 G's 10-5000 CPS. The Astrorelay will meet 100 G shock test requirements.

Standard voltage ranges available are 6, 12, 24 volts. The relay will operate over a minus 65— + 125 degrees C temperature range with a pull in power of approximately 250 milliwatts. Standard 4 pole double throw contact arrangement offers operation at any load from dry circuit, up to 2 amperes at 28 VDC resistive, featuring a contact resistance of less than 30 milliohms. Operate speed at nominal voltage will be approximately 8 milliseconds including a 2 millisecond maximum contact bounce. Drop out speed will be less than 4 milliseconds. In spite of the extremely small size, the insulation resistance is in excess of 1000 megohms, the relay will withstand a high potential break down test of 750 volts AC between any mutually insulated terminals or terminals in case. Dimensions are 0.875 x 0.800 x 0.400.

For complete details, write to
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191 Newel Street,
Brooklyn 22, New York.

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Columbus Electronics
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Delco Radio
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Unitrode Transistor
Universal Relay
U S Semiconductor Prods
Vickers Electric Prods Div
WE-Gen Purpose Control
WE-Semiconductor
Wakefield Engineering
Westinghouse Electric

RECTIFIERS, High-Vacuum

British Industries
Cetron Electronic
DJECO
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Green Rectifier
Hewson Co Inc
Hughes Products
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International Rectifier
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Opad Electric Co
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Power Tronic Systems
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RECTIFIERS, Mercury Vapor

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DJECO
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Opad Electric Co
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Intl Electronics
Machlett Labs
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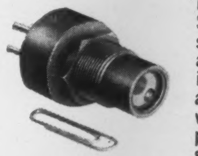
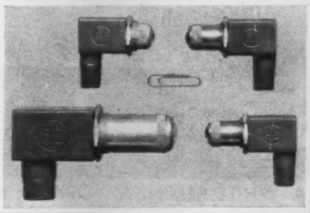
Automation Components

MINIATURE PHOTOELECTRIC SCANNER



Proximity sensor Type SA-1R contains light-source, photocell, and an infrared filter, all in a small anodized-aluminum housing with standard four-prong connector. The solid-state photocell is sensitive, sturdy, and sealed for protection against moisture, dust, or corrosive atmospheres. This scanner operates on reflected light, is responsive to metallic and non-metallic objects. Two models available. Write for Bulletin 260-A.

Type	Max. Sensing	Lamp rating
SA-1R	up to 2 inches	5 v. a-c 60,000 hrs.
SA-1RM	up to 6 inches	2 v. a-c 5,000 hrs.



Short-range scanner SA-1 and medium-range scanner SA-1M consist of two units, the light source and the photocell unit. These small-size scanners have adjustable focus of light-beam for high-precision scanning of rapidly moving parts, with beam-interruption by 1/32" objects. Eyeshade and infrared filter available to increase range and effectiveness. Write for Bulletin 659.

Type	Max. Sensing	Lamp rating
SA-1	up to 4 feet*)	6 v. a-c 5,000 hrs.
SA-1M	up to 12 feet*)	5 v. a-c 5,000 hrs.

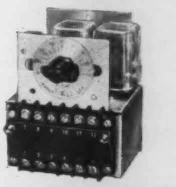
*) can be increased 50% by using eyeshade and infrared filter.

PHOTOELECTRIC RELAYS

Type PE3 — General-purpose relay
Type PE4 — High-speed-impulse relay
Type PE5 — Time-delay relay
Type PE7 — Photo-electric timer

For use with photoelectric scanners; provide suitable light-source voltages; DPDT load contacts handle 8 amperes (non-inductive) at 115 volts a-c.

CK ELECTRONIC TIMERS



Model 120 General-Purpose timer features cold-cathode tube and identical plastic-enclosed plug-in relays, has seven basic modes of operation, including repeat-cycle timing. (Size 4⅞" x 3¾" x 3½".) For information on timers write for Bulletin 120.

SYNCHRONOUS CONTACTORS

Rotating camshaft actuates distributor-type switches. Single and double-circuit models available. Write for Bulletin "Rototimer".

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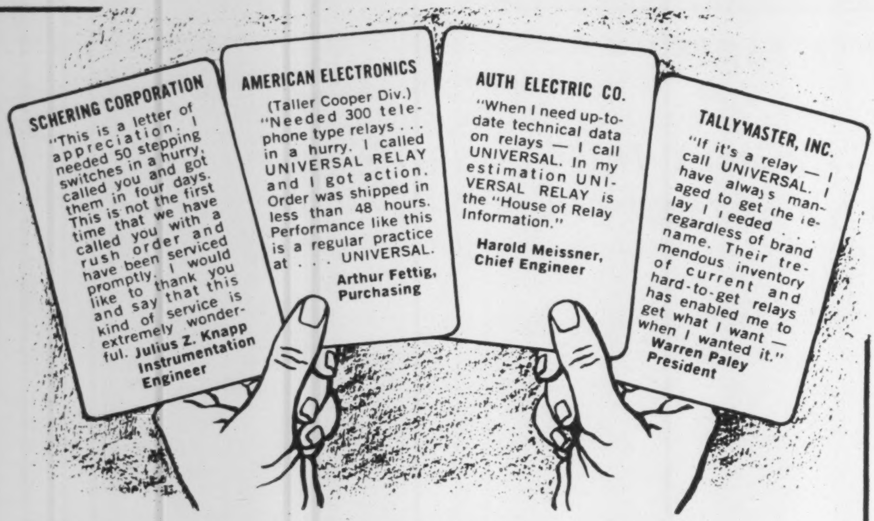
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Instrumentation Engineer
AMERICAN ELECTRONICS
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"Needed 300 telephone type relays . . . in a hurry. I called UNIVERSAL RELAY and I got action. Order was shipped in less than 48 hours. Performance like this is a regular practice at . . . UNIVERSAL.
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AUTH ELECTRIC CO.
"When I need up-to-date technical data on relays — I call UNIVERSAL. In my estimation UNIVERSAL RELAY is the "House of Relay Information."
Harold Meissner, Chief Engineer
TALLYMASTER, INC.
"If it's a relay — I call UNIVERSAL. I have always managed to get the relay I needed . . . regardless of brand name. Their tremendous inventory of current and hard-to-get relays has enabled me to get what I want — when I wanted it."
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Dorne and Margolin
Ebert Electronics
Electro-Autosizing
Electro-Seal Corp
Electro Tec Corp
Electronic Computer Co
Electronic Control
Electronic Products
Electronic Specialty Co
Elgin Natl Watch Elx Div
Essex Wire Corp
Farmer Electric
Filtors Inc
GE Apparatus Sales Div
GE Specialty Control
G-V Controls
General Automatic
General Railway Signal
Goat Electronics
Guardian Electric
Gulton Industries
H-B Instrument
Hart Mfg Co
Hartman Electrical Mfg
Haydon Co A W
Haydon Co A W (Calif)
Heath Co
Hi-Spec Electronics
Hoover Electronics
Hydro-Aire Co
Keithley Instruments Inc
Kurman Electric Co
LaPine Scientific Co
Larson Instrument
Leach Corporation
Loral Electronics
M-H Apparatus Contls
M-H Brown Instrs Div
Mach Electrification
Magnecraft Electric
Mallory & Co P R
Manostat Corp
Med-Tronics Mfg Co
Millivac Instr Inc
Norbatrol Electronics
North Electric Co
Ovitron Corp
Parko Electronics Co
Philadelphia Scien Glass
Photobell Co
Pollak Corp Jos
Potter & Brumfield
Power Controls Div
Precision Scientific Co
Precision Thermometer
Price Electric Corp
R-B-M Controls Div
Ratheon/Industrial Comp
Relay Sales Inc
Relay Service Co
Rixon Electronics
Sage Laboratories
Servo-Tek Prod
Simplex Time Recorder
Simpson Electric
Square D Co
Stelma Inc
Tempo Instrument
Tri-Tronics Co
Universal Relay
Varo Mfg Co
Victory Engrg Corp
Wheelock Signals Inc
Wilson Co G C
Worner Electronic Devices

RELAYS, Frequency

Anadex Instruments Inc
Automatic Switch Co
Automation Controls Corp
Biddle Co James G
Clare & Co C P
Comar Electric
Dorne and Margolin
Electric Regulator
Electronic Specialty Co
Fork Standards
GE Apparatus Sales Div
GE Specialty Control
General Railway Signal
Guardian Electric
Gulton Industries
Hartman Electrical Mfg
Hoover Electronics
J-B-T Instruments
Kurman Electric Co
Leach Corporation
Natel Engrg Co
Parko Elx
Potter & Brumfield
Security Devices Lab
Sensitive Research Instr
Simplex Time Recorder
Stevens-Arnold
Torwico Electronics
Universal Relay
Varo Mfg Co
Waugh Engrg Co
Wheelock Signals Inc

RELAYS, Galvanometer

Corbett Science Labs
Daystrom/Weston
Edison Industries T A
Federal Pacific

G E Apparatus Sales Div
Universal Relay

RELAYS, Heavy Duty (Rating 30 amp. or above)

Acro Division
Adams & Westlake
Aemco Inc
Allen Bradley
Automatic Switch Co
B/W Controllers
Cutler-Hammer
Ebert Electronics
Electric Regulator
Energy Kontrols
Essex Wire Corp
GE Apparatus Sales Div
G E Gen Purpose Contl
General Controls
Guardian Electric
Gulton Industries
Hart Mfg Co
Hartman Electrical Mfg
Jennings Radio Mfg
Kurman Electric Co
Leach Corporation
Mack Electric Dev
Magnecraft Electric
McIlvaine O T
Mercoid Corp
Monitor Controller Div
Ovitron Corp
Philadelphia Scien Glass
Pollak Corp Jos
Potter & Brumfield
Price Electric Corp
R-B-M Controls Div
Relay Sales Inc
Rowan Controller Co
Square D Co
Struthers-Dunn
Universal Relay
Ward Leonard Electric
Wheelock Signals Inc
Zenith Electric Co

RELAYS, Hermetically Sealed

Adams & Westlake
Aemco Inc
Allied Control Co
Artisan Electronics
Astromics Div
Automatic Electric
Automatic Timing & Contls
Automation Controls Corp
Barber-Colman
Bergen Labs Inc
Biddle Co James G
Bourns Inc
Branson Corp
Bristol Co
Clare & Co C P
Comar Electric
Control Dynamics Corp
Cook Electric Co
Couch Ordnance Inc
Cramer Div
Curtiss-Wright
Cutler-Hammer
Daystrom/Weston
Durakool Inc
Ebert Electronics
Edison Industries T A
Electric Regulator
Electro-Seal Corp
Electrospace Corp
Electro Tec Corp
Electronic Computer Co
Electronic Specialty Co
Elgin Natl Watch Elx Div
Elotec Corp
Energy Kontrols
Essex Wire Corp
Filtors Inc
Filtors Inc
GE Apparatus Sales Div
G E Specialty Controls
G-V Controls
General Automatic
Giannini Controls Corp
Globe Electrical
Goat Co Inc Fred
Goat Electronics
Guardian Electric
Gulton Industries
H-B Instrument
Hart Mfg Co
Hartman Electrical Mfg
Haydon Co A W
Hillburn Electronic
Hi-G Inc
Hi-Spec Electronics
Hufco Industries
Hughes Products
Intelex Systems Inc
Iron Fireman Elx Div
James Vibrapowr Co
Kurman Electric Co
Leach Corporation
Ledex Inc
Leland Inc G H
Loral Electronics
Mack Electric Dev
Magnecraft Electric
Mallory & Co P R
McIlvaine O T
Mercoid Corp
Metals & Controls Inc
Miniature Elx Components
Naybor Labs E V
Networks Elx Corp
North Electric Co
Ohmite Mfg Co
Opad Electric Co
Ovitron Corp
Philadelphia Scien Glass
Phillips Control Corp
Pollak Corp Jos
Potter & Brumfield
Price Electric Corp
R-B-M Controls Div
Relay Sales Inc
Relay Service Co
Revere Corp of Amer
Rixon Electronics
Sigma Instruments
Stevens-Arnold
Struthers-Dunn
Thermal Controls Inc
Union Switch & Signal
Universal Relay
Vapor Heating Corp
Wheelock Signals Inc

RELAYS, Instrument Controlled

Adams & Westlake
Aemco Inc
Allied Control Co
Astromics Div
Automatic Electric
Automatic Switch Co
Automatic Timing & Contls
Automation Controls Corp
B/W Controller
Brach Mfg Corp
Branson Corp
Bristol Co
Clare & Co C P
Control Dynamics Corp
Cook Electric Co
Daystrom/Weston
Durakool Inc
Ebert Electronics
Edison Industries T A
Electric Regulator
Electro-Autosizing
Electronic Specialty Co
Federal Pacific
G E Apparatus Sales Div
General Automatic
General Railway Signal
Guardian Electric
Gulton Industries
Hi-G Inc
Hillburn Electronic
J-B-T Instruments
James Vibrapowr Co
Keithley Instruments In
Kurman Electric Co
Larson Instrument
Loral Electronics
M-H Brown Instrs Div
Mack Electric Dev
Magnecraft Electric
Mercoid Corp
Millivac Instr Inc
North Electric Co
Opad Electric Co
Ovitron Corp
Philadelphia Scien Glass
Phillips Control Corp
Pollak Corp Jos
Potter & Brumfield
Powers Regulator
Price Electric Corp
Relay Sales Inc
Relay Service Co
Republic Flow Meters
Research Industrial Lab
Sensitive Research Instr
Simpson Electric
Stevens-Arnold
Struthers-Dunn
Universal Relay
Victory Engrg Corp
Ward Leonard Electric
Westinghouse Electric
Wheelco Indus Instrs

RELAYS, Mercury (see also Switches, Mercury)

Adams & Westlake
Allied Control Co
Automatic Electric
Bernco Engrg
Corona Engrg Service
Durakool Inc
Ebert Electronics
Edwards Co
Electro-Seal Corp
Energy Kontrols
Gordos Corp
H-B Instrument
Kellogg Switchboard
Mack Electric Dev
McIlvaine O T
Mercoid Corp
Mercury Contacts
Philadelphia Scien Glass
Relay Sales Inc
Struthers-Dunn
Sylvania Special Prods
Tigerman Engineering
Universal Relay

RELAYS, Mercury Tube

Adams & Westlake
Aemco Inc
Automatic Electric
Bernco Engrg Corp
Clare & Co C P
Durakool Inc
Ebert Electronics
Gordos Corp
H-B Instrument
Mack Electric Dev
Mercoid Corp
Mercury Contacts
Philadelphia Scien Glass
Relay Sales Inc
Struthers-Dunn
Universal Relay

RELAYS, Motor Driven, Time Delay

Abrams Instrument
Aemco Inc
Alina Corp
Allen-Bradley
Amglo Corp
Automatic Control Co
Brailsford & Co
Cook Electric Co
Cramer Div
Curtiss-Wright
Cutler-Hammer
Eagle Signal
Ebert Electronics
GE Apparatus Sales Div
G E Gen Purpose Contl
General Railway Signal
Globe Industries
Guardian Electric
Hagan Mfg Co
Hamilton Watch Co
Haydon Co A W
Industrial Timer Corp
Kurman Electric Co
Land-Air Inc
Leach Relay Div
M-H Industrial Controls
North Electric Co
Pollak Corp Jos
Price Electric Corp
Relay Sales Inc
Scientific Industries
Struthers-Dunn
Universal Relay
Westinghouse Electric
Zenith Electric Co

RELAYS, Movable Coil AC

Daystrom/Weston
Federal Pacific
Guardian Electric
Hart Mfg Co
Hillburn Electronic
Kurman Electric Co
Loral Electronics
North Electric Co
Ovitron Corp
Relay Sales Inc
Struthers-Dunn
Universal Relay
Wheelock Signals Inc

RELAYS, Overload

Adams & Westlake
Aemco Inc
Allen-Bradley
Allied Control Co
Allis-Chalmers
Amer Kloeckner-Moeller
Artisan Electronics
Assembly Products Inc
Automatic Switch Co
B/W Controller
Branson Corp
Clare & Co C P
Clark Controller
Comar Electric
Control Dynamics Corp
Cook Electric Co
Cutler-Hammer
Delco Products
Durakool Inc
E-T-A Products
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Electric Regulator

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- Relays—Plug-In
- Relays—Miniature, Sub-Miniature
- Relays—Open or Hermetically Sealed
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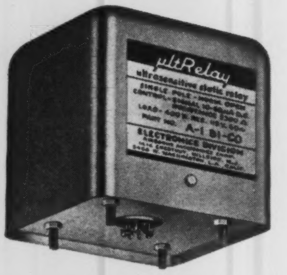

The Static Relay with Meter Movement Sensitivity

The ultRelay, a new solid state ultrasensitive relay with input sensitivity to 0.25 microwatt, was designed specifically for applications which previously required fragile meter movement relays. Absence of mechanical contacts, bearings and moving coils permit millions of switching cycles and freedom from failures caused by contact chatter, vibration, wear and burning.

- **Input sensitivity to 0.25 microwatt D.C.**
- **Low input resistance**
- **Directly operable from thermocouple output**
- **Power amplification to 95 db**
- **60~ 115V loads to 400 watts**
- **Vibration and shock resistant**
- **No external reset circuits required**
- **Single, double or differential input options**
- **Electrical isolation between load and control**
- **Size, 3" x 3" x 3⅛"**
- **Single pole, N.O. or N.C. units available**

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CIRCLE 314 ON READER-SERVICE CARD

Electronic Specialty Co
Elgin Natl Watch Elx Div
Essex Wire Corp
Filtors Inc
GE Apparatus Sales Div
G E Gen Purpose Contl
G-V Controls
General Automatic
General Railway Signal
Hartman Electrical Mfg
Hi-G Inc
Hughes Products
Jennings Radio Mfg
Kurman Electric Co
Larson Instrument
Leach Relay Div
Loral Electronics
Mach Electrification
Magnecraft Electric
Metals & Controls Inc
Monitor Controller Div
Naybor Labs E V
North Electric Co
Ohmite Mfg Co
Opad Electric
Ovitron Corp
Parko Elx
Pollak Corp Jos
Potter & Brumfield
Price Electric Corp
R-B-M Controls Div
Relay Sales Inc
Rowan Controller Co
Sigma Instruments
Square D Co
Struthers-Dunn
Texas Instruments Inc
Tipptronic Inc
U S Relay Electronics
Universal Relay
Ward Leonard Electric
WE-Gen Purpose Control
Wheelock Signals Inc

RELAYS, Permanent-Magnet Movable Coil (D'Arsonval Type)

Allen-Bradley
Assembly Products Inc
Automatic Switch Co
Bourns Inc
Clare & Co C P
Cook Electric Co
Daystrom/Weston
Essex Wire Corp
Federal Pacific
Guardian Electric
Kurman Electric Co
Larson Instrument
Loral Electronics
North Electric Co
Potter & Brumfield
Sensitive Research Instr
Triplett Electl Instr
Universal Relay

RELAYS, Photoelectric

Aemco Inc
Allied Radio
Autotron Inc
Berkeley Dynamics
Clark Controller
Comar Electric
Cramer Div
Daystrom/Weston
Dmeter Mfg
Ebert Electronics
Edison Industries T A
Electronic Control
Energy Kontrols
Federal Mfg & Engrg
Filtors Inc
GE Apparatus Sales Div
G E Specialty Control
General Automatic
Guardian Electric
Kurman Electric Co
Mach Electrification
McIlvaine O T
Med-Tronics Mfg Co
Photobell
Photomation Inc
Pollak Corp Jos
Potter & Brumfield
R-B-M Controls Div
Relay Service Co
Sigma Instruments
Tri-Tronics Co
Victory Engrg Corp
Wintronics
Worner Electronic Devices

RELAYS, Pneumatic

Amot Controls Corp
Bailey Meter Co
Bernco Engrg Corp
Black, Sivalls & Bryson
Conoflow
Cutler-Hammer
Eagle Signal
Fischer & Porter Co
G E Apparatus Sales Div
GE Gen Purpose Contl
General Regulator
Hagan Chem & Controls
Moore Products Co
North Electric Co
Powers Regulator
Republic Flow Meters
Research Controls
Robertshaw Fulton Ctl
Square D Co
Taylor Instrument
Universal Relay
Westinghouse Air Brake

RELAYS, Polarized

Aemco Inc
Allied Control Co
Automatic Electric
Barber-Colman
Branson Corp
Bristol Co
Clare & Co C P
Clark Controller
Cook Electric Co
Ebert Electronics
Edison Industries T A
Electric Regulator
Elgin Natl Watch Elx Div
Executone Inc
Filtors Inc
GE Apparatus Sales Div
G E Specialty Control
General Railway Signal
Hart Mfg Co
Hartman Electrical Mfg
Hi-G Inc
Hillburn Electronic
James Vibrapowr Co
Kurman Electric Co
Larson Instrument
Leach Corporation
North Electric Co
Pollak Corp Jos
Potter & Brumfield
Price Electric Corp
Relay Sales Inc
Sigma Instruments
Stevens-Arnold
Torwico Electronics
U S Relay Electronics
Universal Relay
Wheelock Signals Inc

RELAYS, Power

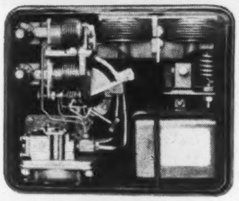
Acro Division
Adams & Westlake
Aemco Inc
Allen Bradley
Allied Control Co
Amer Television & Radio
Artisan Electronics
Automatic Electric
Automatic Switch Co
Automation Controls Corp
Branson Corp
Clare & Co C P
Clark Controller
Comar Electric
Cook Electric Co
Couch Ordnance Inc
Cutler-Hammer
Daystrom/Weston
Durakool Inc
Ebert Electronics
Electric Regulator
Energy Kontrols
Elgin Natl Watch Elx Div
Essex Wire Corp
Filtors Inc
GE Apparatus Sales Div
GE Gen Purpose Ctl Dept
Globe Electrical
Goat Electronics
Guardian Electric
Hart Mfg Co
Hartman Electrical Mfg
Hi-G Inc
Hi-Spec Electronics
Hillburn Electronic
James Vibrapowr Co
Jennings Radio Mfg
Kurman Electric Co
Land-Air Inc
Leach Corporation
Mack Electric Dev
Magnecraft Electric
McIlvaine O T
Miniature Elx Components
Molex Products
Monitor Controller Div
Naybor Labs E V
North Electric Co
Ohmite Mfg Co
Ovitron Corp
Phillips Control Corp
Pollak Corp Jos
Potter & Brumfield
R-B-M Controls Div
Relay Sales Inc
Sigma Instruments
Square D Co
Struthers-Dunn
Unit Process Assemblies
U S Relay Electronics
Universal Relay
Vapor Heating Corp
Victory Engrg Corp
Warco Industries
Ward Leonard Electric
Welch Electric
Wheelock Signals Inc
Zenith Electric Co

RELAYS, Sensitive

Acro Division
Adams & Westlake
Aemco Inc
Airborne Accessories
Allied Control Co
Assembly Products Inc
Automatic Electric
Automatic Switch Co
Automation Controls Corp
Barber-Colman
Baso Inc
Bourns Inc
Bristol Co
Clare & Co C P
Comar Electric
Control Dynamics Corp
Cook Electric Co
Corbett Science Labs
Couch Ordnance Inc
Cutler-Hammer
Daystrom Control Sys
Daystrom/Weston
Ebert Electronics
Edison Industries T A
Electric Regulator
Electroid Corp
Elgin Natl Watch Elx Div
Federal Pacific
Filtors Inc
GE Apparatus Sales Div
GE Gen Purpose Ctl Dept
G E Specialty Control
General Automatic
General Railway Signal

BAILEY METER

PNEUMATIC RELAYS



COMPUTING RELAY

Receives pneumatic signals from transmitters, controllers, and/or relays and produces a control signal according to the computing or control action desired. As an analog computer it can multiply, divide, subtract, average, or totalize pneumatic signals. As a controller it provides the following control actions: Proportional; Proportional plus Reset and/or Rate; and Floating (Reset only). Request Spec P99-3 for details.

REMOTE ADJUSTABLE COMPUTING RELAY

Basically same as Computing Relay described above with the addition of a remotely adjustable proportional band or ratio setting. Adjustment may be mechanically operated or by means of a pneumatic operator or pneumatic transmitter. Proportional band adjustable from 20% to 200%. Request Specs P99-4 and P99-9 for details.

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CIRCLE 315 ON READER-SERVICE CARD

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Goat Co Inc Fred
H-B Instrument
Hart Mfg Co
Hartman Electrical Mfg
Hi-G Inc
Hillburn Electronic
Hi-Spec Electronics
Hughes Products
Iron Fireman Elx Div
J-B-T Instruments
Jaidinger Mfg
Kurman Electric Co
Larson Instrument
Leach Corporation
Liquidometer
Loral Electronics
M-H Precision Meter Div
Mack Electric Dev
Magnecraft Electric
Magnetic Devices Inc
Med-Tronics Mfg Co
Molded Insulation
Molex Products
Naybor Labs E V
North Electric Co
Ohmite Mfg Co
Opad Electric
Pacific Scientific
Parko Electronics Co
Phaostron Instr & Elx
Philadelphia Scien Glass
Phillips Control Corp
Pollak Corp Jos
Potter & Brumfield
Precision Thermometer
Price Electric Corp
Raytheon/Industrial Comp
Reisner Mfg Co W H
Relay Sales Inc
Relay Service Co
Research Industrial Lab
Sensitive Research Instr
Servo-Tek Prod
Sigma Instruments
Simpson Electric
Struthers-Dunn
Torwico Electronics
Union Switch & Signal
U S Relay Electronics
Universal Relay
Vapor Heating Corp
Varo Mfg Co
Victory Engrg Corp
Ward Leonard Electric
Warrick Co Chas F
Wheelock Signals Inc

RELAYS, Stepping

Artisan Electronics
Astromics Div
Automatic Electric
Clare & Co C P
Comar Electric
Cook Electric Co
Corbett Science Labs
Cunningham Son & Co
Electro-Seal Corp
Electrospace Corp
Electronic Specialty Co
GE Apparatus Sales Div
General Controls Co
General Railway Signal
Guardian Electric
Haydon Co A W
Hi-G Inc
Hillburn Eelctronic
Imtra Corp
Intelex Systems Inc
Kellogg Switchboard
Land-Air Inc
Leach Relay Div
Ledex Inc O
Leland Inc G H
Loral Electronics
Mercoid Corp
North Electric Co
Potter & Brumfield
Price Electric Corp
Relay Sales Inc
Sigma Instruments
Stromberg-Carlson Co
Struthers-Dunn
U S Relay Electronics
Universal Relay

RELAYS, Subminiature

Aemco Inc
Aero Electronics
Allied Control Co
Amerelay Corp
Automatic Electric
Automation Controls Corp
Baso Inc
Bourns Inc
Branson Corp
Clare & Co C P
Comar Electric
Control Dynamics Corp
Cook Electric Co
Couch Ordnance Inc
Curtiss-Wright
Daystrom/Weston
Elgin Natl Watch Elx Div
Electro Tec Corp
Electronic Specialty Co
Executone Inc
Filtors Inc
GE Apparatus Sales Div
G E Specialty Control
G-V Controls
Giannini Controls Corp
Goat Electronics
Guardian Electric
Gulton Industries
Hart Mfg Co
Hi-G Inc
Hillburn Electronic
Hufco Industries
Hughes Products
Intelex Systems Inc
Iron Fireman Elx Div
JB Electronic
Jaidinger Mfg
Kurman Electric Co
Leach Corporation
Ledex Inc
Loral Electronics
Magnecraft Electric
Miniature Elx Components
Naybor Labs E V
North Electric Co
Parko Electronics Co
Philadelphia Scien Glass
Phillips Control Corp
Potter & Brumfield
Price Electric Corp
Raytheon/Industrial Comp
Relay Sales Inc
Sigma Instruments
Struthers-Dunn
Thermal Controls Inc
Union Switch & Signal
U S Relay Electronics
Universal Relay
Victory Engrg Corp
Wheelock Signals Inc

RELAYS, Telephone, Auxiliary Ringing

Aemoo Inc
Allied Control Co
Automatic Electric
Automation Controls Corp
Clare & Co C P
Comar Electric
Electronic Controls Inc
GE Apparatus Sales Div
General Automatic
General Dynamics/Elx
Globe Electrical
Goat Co Inc Fred
Goat Electronics
Guardian Electric
Hillburn Electronic
Hufco Industries
Kellogg Switchboard
Kurman Electric Co
Leach Relay Div
Loral Electronics
Magnecraft Electric
North Electric Co
Ohmite Mfg Co
Phillips Control Corp
Pollak Corp Jos
Potter & Brumfield
R-B-M Controls Div
Relay Sales Inc
Struthers-Dunn
U S Instrument Corp
U S Relay Electronics
Universal Relay
Wheelock Signals Inc

RELAYS, Temperature

Baso Inc
Blonder-Tongue Labs
Blue M Electric
Cook Electric Co
Delco Products
E-T-A Products
Electric Regulator
GE Apparatus Sales Div
General Automatic
Guardian Electric
Hughes Products
Kurman Electric Co
Larson Instrument
Lewis Engrg Co
Magnecraft Electric
Philadelphia Scien Glass
Pollak Corp Jos
Powers Regulator
Precision Thermometer
Sigma Instruments
Therm-O-Disc Inc
Ulanet Co George
Universal Relay
Victory Engrg Corp

RELAYS, Temperature-compensated

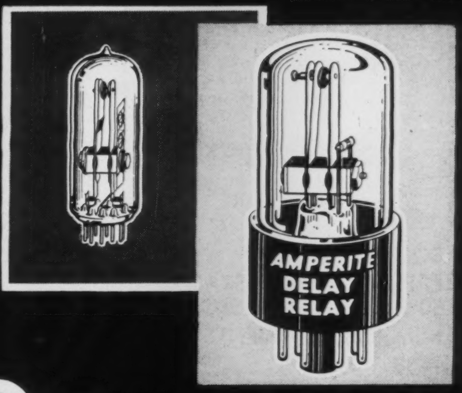
Aemco Inc
Baso Inc
Branson Corp
Cook Electric Co
Curtiss-Wright
Edison Industries T A
Electric Regulator
GE Apparatus Sales Div
G-V Controls
General Automatic
General Controls Co
General Railway Signal
Globe Electrical
Hartman Electrical Mfg
Hi-G Inc
Hughes Aircraft
Kurman Electric Co
Leach Relay Div
Pollak Corp Jos
Sigma Instruments
Thermal Controls Inc
Torwico Electronics
U S Relay Electronics
Victory Engrg Corp

RELAYS, Time Delay

Abrams Instrument
Acro Division
Adams & Westlake
Aemco Inc
AGA Division
Alina Corp
Allen Bradley
Allied Control Co
Alto Scientific
Amperite Co
Anadex Instruments Inc
Artisan Electronics
Automatic Control Co
Automatic Electric
Automatic Switch Co
Automatic Timing & Contls
Automation Controls Corp
Baso Inc
Branson Corp

AMPERITE

Thermostatic DELAY RELAYS



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Delays: 2 to 180 seconds . . . Actuated by a heater, they operate on A.C., D.C., or Pulsating Current . . . Being hermetically sealed, they are not affected by altitude, moisture, or climate changes . . . SPST only—normally open or normally closed . . . Compensated for ambient temperature changes from —55° to +80° C. . . . Heaters consume approximately 2 W. and may be operated continuously . . . The units are rugged, explosion-proof, long-lived, and—inexpensive!

TYPES: Standard Radio Octal, and 9-Pin Miniature . . . List Price, $4.00. Also — Amperite Differential Relays: Used for automatic overload, under-voltage or under-current protection.

PROBLEM? Send for Bulletin No. TR-81

AMPERITE

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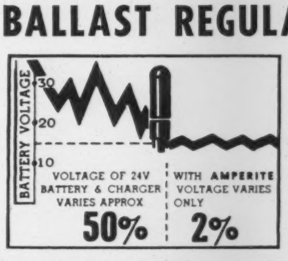

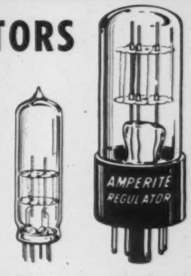

Hermetically sealed, they are not affected by changes in altitude, ambient temperature (—50° to +70° C.), or humidity . . . Rugged, light, compact, most inexpensive . . . . List Price, $3.00.

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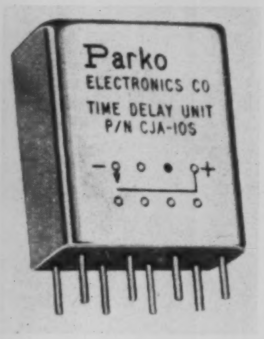
CIRCLE 316 ON READER-SERVICE CARD

CRYSTAL CAN TIME DELAY MODULES



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• PRESET OR ADJUSTABLE 50 MSEC. TO 30 SEC.
• MIL. ENVIRONMENTS
• —55 TO 125°C
• TIGHT TOLERANCE

For Full Details on Time Delay Relays and Current Voltage and Frequency Sensors write to

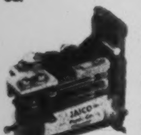
PARKO ELECTRONICS CO.
2639 LA CIENEGA BLVD.
LOS ANGELES 34, CALIF.
UP 08618

CIRCLE 317 ON READER-SERVICE CARD

Specify
JAICO RELAYS
for
PRECISION, QUALITY PERFORMANCE

The MR—Our Miniature relay where space and weight are at a premium. Weighs less than 1/2 oz.

JAICO
Prod. Co
Chicago



The QR—Our Precision Relay for Aircraft Instrumentation, etc.

The MD—Our General Purpose Relay for Vending Machines, Automatic Pinsetters, etc.

Dept. I

JAICO PRODUCTS
JAIDINGER Mfg. Co. Inc.
1916 W. HUBBARD STREET
CHICAGO 22, ILLINOIS
PHONE: HA 1-1090

CIRCLE 318 ON READER-SERVICE CARD

Clare & Co C P
Clark Controller
Comar Electric
Cook Electric Co
Cramer Div
Curtiss-Wright
Cutler-Hammer
Data Products Co
Dmeter Mfg
Durakool Inc
E-T-A Products
Eagle Signal
Ebert Electronics
Edison Industries T A
Elastic Stop Nut
Elgin Natl Watch Elx Div
Electro-Seal Corp
Electronic Control
Electronic Products
Electronic Specialty Co
Energy Kontrols
Farmer Electric
G-V Controls
General Automatic
General Controls
GE Apparatus Sales Div
G E Gen Purpose Contl
G E Missile & Space
G E Specialty Control
General Railway Signal
Globe Electrical
Globe Industries
Goat Co Inc Fred
Goat Electronics
Guardian Electric
Hagen Mfg Co
Hamilton Watch Co
Hartman Electrical Mfg
Haydon Co A W
Haydon Co A W (Calif)
Hi-G Inc
Hughes Products
Hydro-Aire Co
Industrial Timer Corp
Jaidinger Mfg
Kurman Electric Co
Labline Inc
Larson Instrument
Leach Corporation
Loral Electronics
Machinery Electrification
Magnecraft Electric
Mallory & Co P R
Master Specialties
McIlvaine O T
Natel Engrg Co
Naybor Labs E V
North Electric Co
Ohmite Mfg Co
Parko Electronics Co
Phillips Control Corp
Pollak Corp Jos
Precision Thermometer
Price Electric Corp
R-B-M Controls Div
Relay Sales Inc
Rhodes Inc M H
Rodale Electronics
Rowan Controller Co
Slip Ring Co of Amer
Square D Co
Struthers-Dunn
Tempo Instrument
Thermal Controls Inc
Therm-O-Disc Inc
Tipptronic Inc
Torwico Electronics
United Control Corp
Ulanet Co George
U S Instrument Corp
U S Relay Electronics
Universal Relay
Victory Engrg Corp
Voi-Shan Electronics
Waugh Engrg Co
WE-Director Systems
Westinghouse Electric
Wheelock Signals Inc
Wilson & Co G C
Zenith Electric Co

RELAYS, Transformer, Low Voltage

Aemco Inc
Automatic Timing & Contls
B/W Controllers
Clare & Co C P
Ebert Electronics
G-V Controls
GE Gen Purpose Ctl Dept
General Controls
Guardian Electric
Gulton Industries
Kurman Electric Co
Mercoid Corp
North Electric Co
Pyramid Instr Corp
Struthers-Dunn
Universal Relay
Warrick Co Chas F

RELAYS, Vacuum Contact

Allied Control Co
Clare & Co C P
Ebert Electronics
Eitel-McCullough
GE Apparatus Sales Div
Jennings Radio Mfg
Mack Electric Devices
Penta Labs
Philadelphia Scien Glass
Pollak Corp Jos
Struthers-Dunn
Universal Relay

RELAYS, Vibrating Reed Type

Automatic Electric
Biddle Co James G
Bulova Research
Clare & Co C P
Collins Electronics
Electronic Computer Co
Guardian Electric
J-B-T Instruments
Jaidinger Mfg
North Electric Co
Pacific Scientific
Potter & Brumfield
Security Devices Lab
Stevens-Arnold
Universal Relay
Wurlitzer Co

RESISTORS, Adjustable

Allen-Bradley
Atohm Electronics
Bourns Inc
CTS Corporation
Carter Parts Co
Centralab Div
Clark Controller
Clarostat Mfg
Con-Elco
Continental-Wirt
Dale Electronics
Daven Co
Edcliff Instruments
Electric Regulator
Electromath Corp
Filmohm Corp
General Radio
Handley Inc
International Resistance
Mallory & Co P R
Miniature Elx Components
Ohio Carbon Co
Ohmite Mfg Co
Precision Inc
Precision Line Inc
Resistors Inc
Rex Rheostat
Servonic Instruments
Subminiature Instr
Tru-Ohm Products
Tech-Ohm Resistor
United Mineral & Chem
Ward Leonard Electric

RESISTORS, Deposited Carbon

Aerovox Corp
Amperite Co
Bourns Inc
Centralab Div
Clarostat Mfg
Continental-Wirt
Corning Glass
Dale Electronics
Daven Co
Du-Co Ceramics
Electra Mfg
Erie Resistor
International Resistance
Mallory & Co P R
Mepco Inc
Optical Coating Lab
Pendar Inc
Phaostron Instr & Elx
Sprague Electric Co
Technology Instr (Mass)
Technology Instr (Calif)
Tech-Ohm Resistor
Texas Instruments Inc
United Mineral & Chem
Victoreen Instr Co
Wilrite Products

RESISTORS, Ballast

Clarostat Mfg
Ohio Carbon Co
Precision Resistor Co
Tru-Ohm Products
Tech-Ohm Resistor

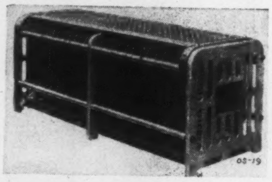
RESISTORS, Carbon Composition and/or Variable

Aero Electronics
Aerovox Corp
Allen-Bradley
Bourns Inc
CTS Corporation
Carter Parts Co
Centralab Div
Clarostat Mfg
Computer Instruments
Con-Elco
Daystrom/Mil Elx
Electromath Corp
Erie Resistor
International Resistance
Mallory & Co P R
Ohio Carbon Co
Ohmite Mfg Co
Reon Resistor Corp
Stackpole Carbon
Sterling Instrument Div
Subminiature Instr
Technology Instr (Mass)
Tech-Ohm Resistor
White Dental Mfg

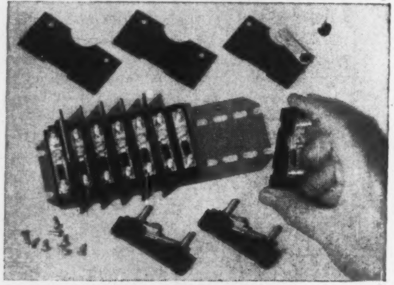
RESISTORS, Encapsulated

Aerovox Corp
Allen-Bradley
Atohm Electronics
Bourns Inc
Centralab Div
Clarostat Mfg
Corning Glass
Dale Electronics
Daven Co
Daystrom/Weston
Devcon Corp
Dmeter Mfg
Electra Mfg
Electro Instruments
Erie Resistor
General Resistance
Gordos Corp
International Resistance
Hi-Q Div
Julie Research Labs
Kelvin Electric
Mallory & Co P R
Mepco Inc
Miniature Elx Components

THE STATES COMPANY
NON-INDUCTIVE RESISTORS
Ohm-Spun
Dummy Antenna-Heater Units



TERMINAL BLOCKS



TYPE "NT" TERMINAL BLOCKS
Sliding link feature permits checking circuits without touching permanent wiring. Any number of poles desired.

THE STATES COMPANY
19-A New Park Ave., Hartford, Conn.

CIRCLE 319 ON READER-SERVICE CARD

Non-Linear Systems
Ohmite Mfg Co
Pacific Resistor
Precision Inc
Precision Resistor Co
Rho Engineering
Reon Resistor Corp
Resistance Prods Co
Shallcross Mfg Co
Sprague Electric Co
Subminiature Instr
Technology Instr (Mass)
Tech-Ohm Resistor
Texas Instruments Inc
Ultronix Inc
Victoreen Instrument

RESISTORS, High Frequency

Aerovox Corp
Atohm Electronics
Clarostat Mfg
Continental-Wirt
Corning Glass
Dale Electronics
Daven Co
Daystrom/Weston
Electra Mfg
Electromath Corp
Erie Resistor
Filmohm Corp
Film Resistors
Halex Inc
Hi-Q Div
International Resistance
Julie Research Labs
Mallory & Co P R
Mepco Inc
Microlectron Inc
Ohmite Mfg Co
Pacific Resistor
Resistance Prods Co
Sprague Electric Co
Technology Instr (Calif)
Technology Instr (Mass)
Tech-Ohm Resistor
Transformers Inc
United Mineral & Chem

RESISTORS, High Megohm

Allen-Bradley
Atohm Electronics
Centralab Div
Clarostat Mfg
Consolidated Res
Corbett Science Labs
Corning Glass
Dale Electronics
Daven Co
Daystrom/Weston
Electro Scientific Ind
Electromath Corp
Julie Research Labs
K-F Development
Kelvin Electric
Mepco Inc
Microlectron Inc
Pacific Resistor
Pyrofilm Resistor
Reon Resistor Corp
Resistance Prods Co
Shallcross Mfg Co
Sprague Electric Co
Technology Instr (Calif)
Technology Instr (Mass)
Tech-Ohm Resistor
United Mineral & Chem
Victoreen Instr Co
White Dental Mfg

RESISTORS, High Voltage

Atohm Electronics
Centralab Div
Clarostat Mfg
Consolidated Res
Corbett Science Labs
Corning Glass
Dale Electronics
Daven Co
Daystrom/Weston
Electromath Corp
Erie Resistor
International Resistance
Julie Research Labs
K-F Development
Mallory & Co P R
Mepco Inc
Microlectron Inc
Ohmite Mfg Co
Pacific Resistor
Precision Resistor Co
Pyrofilm Resistor
Ram Meter Inc
Shallcross Mfg Co
Sprague Electric Co
Technology Instr (Mass)
Tech-Ohm Resistor
United Mineral & Chem
Victoreen Instrument
White Dental Mfg

RESISTORS, Manganin

Atohm Electronics
Consolidated Res
Daven Co
Daystrom/Weston
Dmeter Mfg
General Resistance
Gray Instrument
Industrial Instruments
Julie Research Labs
K-F Development
Kelvin Electric
Mepco Inc
M-H Rubicon Instrs Div
Ohmite Mfg Co
Pacific Resistor
Precision Inc
Precision Resistor Co
Ram Meter Inc
Reon Resistor Corp
Resistance Prods Co

When Using This Guide look under the variable e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

Rinco Inc
Sprague Electric Co
Technology Instr (Mass)
Tech-Ohm Resistor
Shallcross Mfg Co
Winslow Electronics Inc

RESISTORS, Molded

Aerovox Corp
Allen-Bradley
Atohm Electronics
Clarostat Mfg
Consolidated Res
Dale Electronics
Daven Co
Continental-Wirt
Electra Mfg
Filmohm Corp
General Resistance
Hi-Q Div
International Resistance
Julie Research Labs
K-F Development
Mepco Inc
Ohio Carbon Co
Ohmite Mfg Co
Precision Resistor Co
Sprague Electric Co
Technology Instr (Mass)
Tech-Ohm Resistor
White Dental Mfg
Wilrite Products

RESISTORS, Negative Temperature Coefficient

Aerovox Corp
Computer Instruments
Dale Electronics
Daven Co
Dmeter Mfg
Electra Mfg
Erie Resistor
Fenwal Electronics
Film Resistors
Filmohm Corp
GE Magnetic Materials
General Resistance
Hi-Q Div
Kelvin Electric
Mepco Inc
Microlectron Inc
Nucleonic Prods
Shallcross Mfg Co
States Company
Technology Instr Calif
Tech-Ohm Resistor
Victory Engrg Corp
Wilrite Products

RESISTORS, Noninductive

Aerovox Corp
Allen-Bradley
Atohm Electronics
British Industries
Clarostat Mfg
Computer Instruments
Consolidated Res
Continental-Wirt
Corning Glass
Dale Electronics
Daven Co
Daystrom/Weston
Dmeter Mfg
Electra Mfg
Electro Instruments
Film Resistors
Filmohm Corp
General Instr Corp
General Radio
General Resistance
Gray Instrument
Hi-Q Div
Industrial Instruments
International Resistance
Julie Research Labs
K-F Development
Kelvin Electric
Mepco Inc
Microlectron Inc
Miniature Elx Components
Ohmite Mfg Co
Pacific Resistor
Precision Inc
Precision Resistor Co
Rho Engineering
Reon Resistor Corp
Resistance Prods Co
Resistors Inc
Rex Rheostat
Rinco Inc
Shallcross Mfg Co
Sprague Electric Co
States Company
Technology Instr (Calif)
Tru-Ohm Products
Tech-Ohm Resistor
Ultronix Inc
United Mineral & Chem
Ward Leonard Electric

RESISTORS, Precision (accuracy better than 1%)

Aerovox Corp
Allen-Bradley
Atohm Electronics
British Industries
Budd Co Inst Div
CTS Corporation
Clarostat Mfg
Consolidated Res
Continental-Wirt
Corbett Science Labs
Corning Glass
Dale Electronics
Daven Co
Daystrom/Weston
Dmeter Mfg
Electra Mfg
Electro Instruments
Electro Scientific Ind
Electromath Corp
Electro-Mec Lab
Electronic Applications
Erie Resistor
Fenwal Electronics
Film Resistors
Filmohm Corp
General Instr Corp
General Radio
General Resistance
General Transistor
Gray Instrument
Hi-Q Div
Industrial Instruments
International Resistance
Julie Research Labs
K-F Development
Kelvin Electric
Leeds & Northrup
Mallory & Co P R
Mepco Inc
M-H Rubicon Div
Microlectron Inc
Milgo Electronics
Miniature Elx Components
Model Engrg & Mfg Corp
Muirhead Instrs Inc
Networks Elx Corp
Non-Linear Systems
Ohmite Mfg Co
Pacific Resistor
Precision Inc
Precision Line Inc
Precision Resistor Co
Pyrofilm Resistor
Rho Engineering
Reon Resistor Corp
Resistance Prods Co
Resistron Co
Sage Electronics
Shallcross Mfg Co
Sensitive Research Inst
Sprague Electric Co
Sterling Instrument Div
Subminiature Instr
Technology Instr (Calif)
Technology Instr (Mass)
Tech-Ohm Resistor
Texas Instruments Inc
Transformers Inc
Tru-Ohm Products
Ultronix Inc
United Mineral & Chem
Winslow Electronics Inc

RESISTORS, Tape

Atohm Electronics
Daven Co
Filmohm Corp
International Resistance
K-F Development
Paktron
Tech-Ohm Resistor

RESISTORS, Wire Wound (2 watts and Under)

Aero Electronics
Aerovox Corp
Atohm Electronics
Carol Electronics
Centralab Div
Clarostat Mfg
Consolidated Res
Continental-Wirt
Corbett Science Labs
Dale Electronics
Daven Co
Daystrom/Weston
Dmeter Mfg
Electro Instruments
Electro Scientific Ind
Electromath Corp
Electro-Mec Lab
GE Apparatus Sales Div
General Instr Corp
General Radio
General Resistance
General Transistor
Gray Instrument
Hardwick Hindle
Hi-Q Div
International Resistance
Julie Research Labs
K-F Development
Kelvin Electric
Mallory & Co P R
Mepco Inc
M-H Rubicon Div
Miniature Elx Components
Model Engrg
Muirhead Instrs Inc
Non-Linear Systems
Ohmite Mfg Co
Pacific Resistor
Precision Inc
Precision Line Inc
Precision Resistor Co
Rho Engineering
Reon Resistor Corp
Resistance Prods Co
Resistron Co
Rinco Inc
Sage Electronics
Shallcross Mfg Co
Sprague Electric Co
Sterling Instrument Div
Subminiature Instr
Technology Instr (Calif)
Technology Instr (Mass)
Tru-Ohm Products
Tech-Ohm Resistor
Ultronix Inc
United Mineral & Chem

RESISTORS, Wire Wound (2 to 500 watts) (see also Rheostats)

Aero Electronics
Atohm Electronics
Centralab Div
Clark Controller
Clarostat Mfg
Continental-Wirt
Dale Electronics
Daystrom/Weston
Dmeter Mfg
Electro-Flex Heat
Electromath Corp
GE Apparatus Sales Div
General Radio
Hardwick-Hindle
HiQ Div
International Resistance
Kelvin Electric
Klinger Scientific
Mallory & Co P R
Mepco Inc
Microloc Corp
Model Engrg
Model Rectifier
Ohio Carbon Co
Ohmite Mfg Co
Pacific Resistor
Precision Inc
Ram Meter Inc
Resistors Inc
Rex Rheostat
Sage Electronics
Shallcross Mfg Co
Sprague Electric Co
Square D Co
Sterling Instrument Div
Subminiature Instr
Technology Instr (Mass)
Tru-Ohm Products
Tech-Ohm Resistor
United Mineral & Chem
Ward Leonard Electric

RESISTORS, Wire Wound (500 to 1500 watts) (see also Rheostats)

Atohm Electronics
Clark Controller
Daystrom/Weston
Electromath Corp
GE Apparatus Sales Div
Hardwick-Hindle
Hi-Q Div
International Resistance
Klinger Scientific
Mallory & Co P R
Model Engrg
Ohmite Mfg Co
Ram Meter Inc
Resistors Inc
Rex Rheostat
Square D Co
Sterling Instrument Div
Technology Instr (Mass)
Tru-Ohm Products
Tech-Ohm Resistor
United Mineral & Chem
Ward Leonard Electric
WE-Gen Purpose Control
Westinghouse Electric

RESISTORS, Woven

Clarostat Mfg
Cox and Company
States Company
Tech-Ohm Resistor

RETICLES

Bushnell & Co D P
Davidson Optronics
Finescale Co
Gaertner Scientific Corp
Gordon Enterprises
Kollsman Instr Corp
Leroy M E Clausing
Model Rectifier
O & S Research Inc
Palos Optical Co
Photoplating Co
Renick Co L C
Simpson Optical Mfg Co
Tiffen Optical
Varo Mfg Co
Zenith Optical Lab

RHEOSTATS, Field

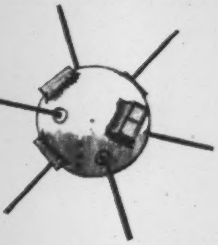
Clark Controller
Clarostat Mfg
Cutler-Hammer
GE Apparatus Sales Div
Hardwick-Hindle
Mallory & Co P R
Model Rectifier
Natl Elec Controller
Ohmite Mfg Co
Tru-Ohm Products
Ward Leonard Electric
WE-Gen Purpose Control
Westinghouse Electric

RHEOSTATS, Slide Wire and Variable (see also Resistors)

Ace Electronics Assoc
Aero Electronics
Allen-Bradley
Atohm Electronics
Biddle Co James G
Bourns Inc
CTS Corporation
Carter Parts Co
Chicago Aerial
Clarostat Mfg
Continental-Wirt
DeJur-Amsco Corp
Electro Scientific Ind
General Controls
General Radio
Hardwick-Hindle
Howell Instrument Co
Kintronic Div
Mallory & Co P R
Model Engrg
Model Rectifier
Natl Elec Controller
Ohmite Mfg Co
Precision Line Inc
Rex Rheostat
Rinco Inc
Servonic Instruments
Superior Electric Co
Tech-Ohm Resistor
Ultronix Inc
United Mineral & Chem
U S Controls Inc
Ward Leonard Electric
Welch Scientific Co
Westinghouse Electric

SCALES, Instrument

American Laubscher
Berger & Sons C L
Bushnell & Co D P
Canadian Radium
Chatillon John
Croname Inc
Dillon & Co W C
Engis Equipment
Etching Corp of Calif
Exact Weight Scale
Exactel Instrument Co
Felsenthal & Sons
Gaertner Scientific
Gerber Scientific Instr
Gurley W & L E



We're still **IN ORBIT**

and . . . here is our latest "check list" of TFT components by METAVAC, INC.

MICROWAVE-ELECTRONIC

Resistors for Microwave Applications
Coaxial attenuators, coaxial terminations.
Metallized discs and rods on glass, ceramic, mica or fiberglass.
Stripline Resistors.
Special: low ohm—low t.c. resistors.
micro-miniature resistors.
high power coaxial load resistors.
Waveguide Attenuators
Metallized Glass—Metallized Mica.
Metallized Fiberglass—Metallized Fotoceram*.
Precision Resistance Cards—Metavac Metallized Fiberglass.
Silvered Mica Capacitors.
Platinized Windows.

OPTICAL-INFRARED

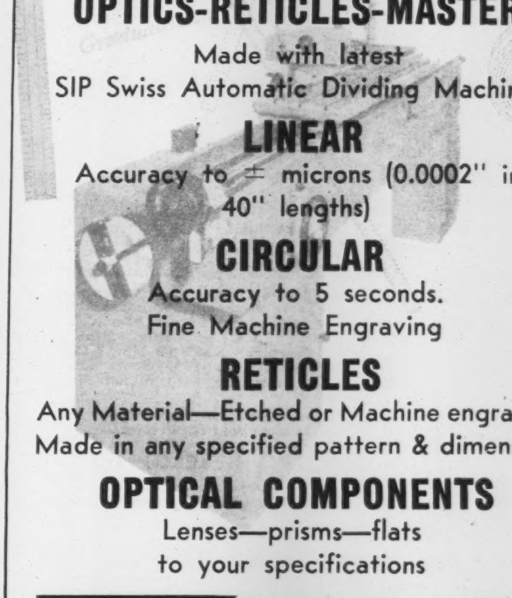
LENSCOTE®—Anti-reflection coatings, single and bi-layer; Also for I R Transmitting materials.
Aluminized mirrors, and semi-transparent mirrors.
Interference-type films, and beam splitters.
Coatings: Neutral density, anti-static, and electrically conducting.
Gradient density filters, and neutral density optical wedges.
SILFARED Filters, Infrared Windows and Domes.
Ruby Maser Coatings.

Also thin films of all types. Consult us about your thin film applications.

METAVAC • INC.
exponents of thin film technology
45-68 162nd STREET FLUSHING 58, N.Y.
Hickory 5-0400

* *T.M. Corning Glass Wks.*

CIRCLE 320 ON READER-SERVICE CARD



SCALES - DIALS - VERNIERS
OPTICS - RETICLES - MASTERS

Made with latest
SIP Swiss Automatic Dividing Machines

LINEAR
Accuracy to ± microns (0.0002" in 40" lengths)

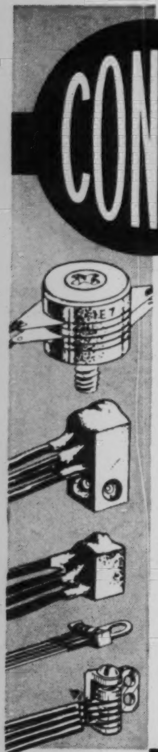
CIRCULAR
Accuracy to 5 seconds.
Fine Machine Engraving

RETICLES
Any Material—Etched or Machine engraved
Made in any specified pattern & dimension

OPTICAL COMPONENTS
Lenses—prisms—flats
to your specifications

L. C. RENICK CO.
2623 De La Vina St.
Santa Barbara, Calif.

CIRCLE 321 ON READER-SERVICE CARD



CONANT where stability and miniaturization are primary

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COPPER OXIDE
AND SELENIUM

INSTRUMENT RECTIFIERS
RING MODULATORS
HIGH-VOLTAGE RECTIFIERS
VOLTAGE REGULATORS
SWITCHED RECTIFIERS
CHOPPERS
SPECIAL PURPOSE UNITS
LIST PRICES FROM .42c

5 COPPER OXIDE CELL STYLES FROM .080" to .500" DIA. ACTIVE AREAS .0012 to .125 SQ. IN.

SELENIUM CELL SIZES FROM .080" round TO 2" SQUARE. .020" TO .045" THICK.

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Free Bulletins
Dept. 50

CONANT LABORATORIES
LINCOLN, NEBRASKA

CIRCLE 322 ON READER-SERVICE CARD

ELDEC
High quality
SLIP RING
& BRUSH HOLDER
ASSEMBLIES
MEET YOUR MOST RIGID
REQUIREMENTS

Precision ELDEC slip rings are molded in one piece for maximum insulation, high dielectric strength and higher hi-pot. Concentricity .002" T.I.R. or better. Miniaturized to .023" (2 rings) .035" (3 rings) .060" (9 rings). Sizes up to 18". Four micro-inch finishes are standard with higher finish as required.

See nearest representative or send us your requirements.

ELECTRO DEVELOPMENT CO.
14701 Keswick St.. Van Nuvs. Calif.
Ph. Triangle 3-1850 and State 6-3660

REPRESENTATIVES

A.L. Livera & Associates, Inc.
2 Green Village Rd.
Madison, N. J.
Ph. Frontier 7-3220

15-51 Franklin Ave.
Mineola, L. I., N. Y.
Ph. Pioneer 1-7044

Marbel Associates, Inc.
1016 First Ave. South
Seattle 4, Washington
Ph. Main 3-5006

Malovac Sales Co.
5906 W. North Ave.
Chicago 39, Ill.

Wall Associates
P.O. Box 161
Dewitt. New York

M. D. Hecht Associates
3839 N. 39th Ave.
Phoenix, Arizona
Ph. Browning 2-2121

Southwest Electronic Industries
4515 Prentice St.
Dallas, Texas
Ph. Emerson 3-1671

Arthur Engineering
11216 W. Mallory Ave.
Hales Corners, Wisconsin
Garden 5 5919

3264 N. Victoria Ave.
St. Paul, Minn.

CIRCLE 323 ON READER-SERVICE CARD

Jan Hardware Mfg
Metalphoto Corp
Nester Company
Ohaus Scale Corp
Photoplating Co
Renick Co L C
Sensitive Research Instr
Streeter Amet Co
Thayer Scale Corp
Triner Scale & Mfg
Trio Laboratories
U S Radium Corp
Waldom Electronics

SEMICONDUCTORS AND COMPONENTS

Amperex Electronic
Britton Electronics
Burroughs Corp
Clevite Transistor
Controls Co of America
Electronic Transistors
Engelhard Industries
Fairchild Semiconductor
Ferranti Electric
General Instr Corp
Hadley Inc H A
Hoffman Electronics
Hughes Products
Hughes Semiconductor
International Rectifier
Kahle Engineering Co
Lockheed Electronics
M-H Semiconductor Prods
Micro Systems
Microwave Associates
Milton Ross Co
National Semiconductor
Nippert Electric Pro
North Amer Electronics
Pacific Semiconductors
Philco/Lansdale
Raytheon/Semiconductor
Rheem Semiconductor
Richfield Coined Prod
Sanders Associates
Solitron Devices Inc
Sperry Semiconductor
Sprague Electric Co
Standard Steel
Sylvania Semiconductor
Syntron Co
Transitron Electronic
Unitrode Transistor
Wakefield Engineering
Vemaline Products
Western Transistor

SLIP RINGS

Airflyte Electronics
Beck S Inc
Brainin Corp C S
Braun Tool & Inst Co
Carbone Corp
Collectron Corp
Computer Instruments
Dittmore-Freimuth
Electro Development
Electro-Miniatures
Electro Switch Corp
Electro Tec Corp
Engelhard Industries
Gibson Electric
Gorham Mfg Co
Graphite Metallizing
Intl Powder Metallurgy
Lebow Associates Inc
Litton Systems
Metals & Controls Inc
Milton Ross Metals
Model Engrg
Molded Insulation
Nippert Electric Pro
Pacific Scientific
Poly-Scientific Corp
Rotary Devices Corp
Scientific-Atlanta
Servonic Instruments
Slip Ring Co
Texas Instruments Inc
United Sensor & Control

SERVOMOTORS, Electric Motor and/or Solenoid

Airesearch Mfg Co
American Electronics
Amer Meas & Control
Barber-Colman
Beckman/Helipot Div
Bendix Eclipse-Pioneer
Clifton Precision
Dalmotor Div
Diehl Mfg Co
Dynamic Instr Corp
Eastern Air Devices
Edison Industries T A
Electric Indicator
Electro-Autosizing
Ford Instr
Genisco Inc
Haydon Co A W
Hoover Electric Co
IMC Magnetics
Kearfott Div
Land-Air Inc
Librascope Div
Link Div
M-H Industrial Controls
Muirhead Instrs Inc
Oster Mfg John
Sangamo Electric Co
Servo Systems Co
Servo-Tek Prod
Sperry Gyroscope
Summers Gyroscope
Teller Co
Tyco Inc
Western Gear Corp
Weston Hydraulics Ltd

SOLENOIDS, (see also Relays)

A P W Company
Allen-Bradley
Applied Dynamics
Artisan Electronics
Automatic Electric
Automatic Switch Co
B/W Controllers
Caltron Products Co
Cannon Electric
Carruthers & Fernandez
Comar Electric
Controls Co of Amer
Cunningham Son & Co
Cutler-Hammer
Detroit Coil Co
Electric Autolite
Electric Regulator
Electrical Windings
Electroid Corp
Essex Wire Corp
GE Apparatus Sales Div
G E Gen Purpose Contl
General Controls Co
Guardian Electric
Goat Co Inc Fred
Hamilton Standard Div
Heitz Inc Karl
Hydro-Aire Co
IMC Magnetics
Jack & Heintz Inc
Kellogg Switchboard
Kintronic Div
Koontz-Wagner Elec
Land-Air Inc
Leetronics Inc
Lisk Co G W
Merit Coil & Transformer
Midwestern Instrs
Miniature Elx Components
Model Engrg & Mfg Corp
Phillips Control Corp
Pollak Corp Jos
R-B-M Controls Div
Relay Sales Inc
Synchro-Start
Standard Winding
Sylvania Special Prods
U S Relay Co
Valcor Engrg Corp
Welch Electric
Wells Electronics
West Coast Electrical
Weston Hydraulics Ltd

SOLENOIDS, Rotary

Amer Meas & Control
Carruthers & Fernandez
Curtiss-Wright
Haydon Co A W
Hoover Electric Co
Hydro-Aire Co
IMC Magnetics
Land-Air Inc
Ledex Inc
Leetronics Inc
Leland Inc G H
Licon Div
Naybor Labs E V
North Atlantic Indus
Oak Mfg Co
Pacsol Div
Relay Sales Inc
Standard Winding
Sylvania Special Prods
Western Gear Corp

SOLENOIDS, Subminiature

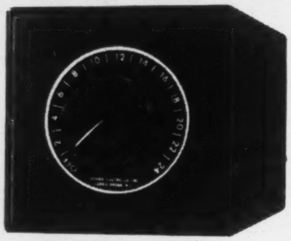
A P W Company
Artisan Electronics
Cannon Electric
Carruthers & Fernandez
Comar Electric
Controls Co of Amer
Cunningham Son & Co
Electroid Corp
Haydon Co A W
Hydro-Aire Co
IMC Magnetics
Kintronic Div
Koontz-Wagner Elec
Ledex Inc
Leetronics Inc
Lisk Co G W
Midwestern Instrs
Miniature Elx Components
Modelectric Pro
Naybor Labs E V
Phillips Control Corp
Pollak Corp Jos
Relay Sales Inc
Servotronics Inc
Standard Winding
Sylvania Special Prods
Valcor Engrg Corp
Wells Electronics
West Coast Electrical

STANDARD CELLS

Daystrom/Weston
Eppley Laboratory
Guardian Electric
Hagan Chem & Controls
Instrulab Inc
International Rectifier
North Hills Electric
Muirhead Instrs Inc
Sensitive Research Instr
Winslow Electronics Inc

SWITCHES, Air Operated

Acro Division
Astromics Div
Bernco Engrg
Bristol Co
Carruthers & Fernendez
Century Elx & Insts
Cole Hersee Co
Colvin Labs
Comptuer Instruments
Consol Controls
Custom Comp Switches
Dietz Co Henry G
Electric Regulator
Ellison Draft Gage
Fairchild Controls



SWITCHING SYSTEMS
For Thermocouples or Resistance Bulb Circuits

Rotary Type Switch

T-E's variety of compact, durable switching systems lets you choose the one best suited to your circuit needs.

Rotary Selector Switch "Shorting-type" switches for quick checking or switching of sensing elements. Maximum, 24 points.

Key Switches Will connect many sensing elements to one instrument or transfer them from one instrument to another. Maximum, 144 points.

Push Button Switches Permit on-off checking or averaging of temperatures from many points. Maximum 72 points.

Quick-Coupling Connector Panels Provide great flexibility in transferring large numbers of thermocouples. Unlimited Capacities.

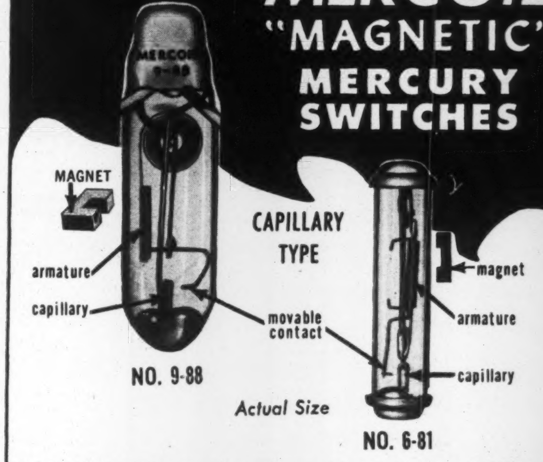
Also a wide selection of quick-coupling plugs and jacks for all thermocouple assemblies.

Write for Bulletin 24-FF

Thermo Electric
Temperature Measuring Systems and Components
Co., Inc., Saddle Brook, N.J.
In Canada: THERMO ELECTRIC (Canada) LTD., Brampton, Ont.

CIRCLE 324 ON READER-SERVICE CARD

MERCOID®
"MAGNETIC" MERCURY SWITCHES



No. 9-88 (normally open) maximum ampere rating 1 Amp. at 24V., 0.5 Amp. at 115V. Can be mounted on any angle up to 30° from vertical. Provides hundreds of cycles per minute. Available normally closed. Various types of leads available.

No. 6-81 (normally open) maximum ampere rating 0.9 Amp. at 24V., 0.3 Amp. at 115V. Available normally closed. Has metal end caps. Can be mounted at any angle up to 45° from vertical. Speeds in excess of 400 cycles depending upon load characteristics. Available with or without leads.

Other types of magnetic switches also available (electrical rating up to 5 Amp. at 115V.)

WRITE FOR BULLETIN NO. 50

THE MERCOID CORPORATION
4211 Belmont Ave., Chicago 41, Ill.

CIRCLE 325 ON READER-SERVICE CARD

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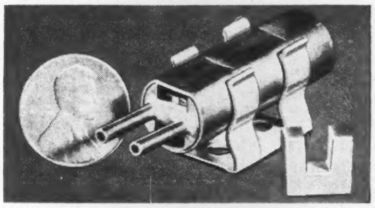
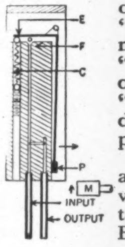
magnet actuated AIR SWITCH



The Pneumation Air Switch is a pneumatic component operated by a small permanent magnet. It is designed for use in explosion hazard environments in place of electrical devices.

An on-off device, the Pneumation Switch features snap action, miniature size and low air consumption.



Operation—De-energized: Spring "C" acts on arm "E" so that bleed port "F" is open. Energized: Magnet "M" acts on pendulum "P" to overcome spring force on arm "E" closing bleed port "F." Output pressure immediately rises to equal input pressure.

The Air Switch completes an all-pneumatic circuit for a variety of applications. For details, write for Bulletin S-1.

ASSOCIATED CONTROL EQUIPMENT, INC.
P. O. Box 136, Coraopolis, Pa.

CIRCLE 326 ON READER-SERVICE CARD

Furnas Electric
General Devices
GE Apparatus Sales Div
Glassco Instr
Gorn Electric
Haydon Switch Inc
Johnson Service Co
Kidde Aero Space Div
Kollsman Instr Corp
Linear Controls
Mercoid Corp
M-H Industrial Controls
Newark Controls
Powers Regulator
Rotary Devices Corp
Servomechanism Inc
Servonic Instruments
Sirco Products Inc
Square D Co
Westinghouse Air Brake
Westinghouse Electric

SWITCHES, Explosive-Actuated

Atlas Powder Co
Beckman & Whitley
Dial Service & Mfg Co
Kidde Aero Space Div
Linemaster Switch Corp
M-H Military Prods Grp
Newark Controls
Tapeswitch Corp
Universal Match Corp

SWITCHES, Instrument, including Wiping Selecting, etc.

Acro Division
Adams-Russell Co Inc
Advanced Technology Labs
Aerovox Corp
Airflyte Electronics
Alford Mfg
Allis-Chalmers
Allied Control Co
Amer Standard Controls
Amphenol IP DK Div
Amphenol-RF Prods Div
Applied Electronics
Applied Science Corp
Astromics Div
Automatic Electric
Automatic Metal Prods
Bay-Tronic Co
CTS Corporation
Capitol Machine Co
Carling Electric
Centralab Div
Clare & Co C P
Clarostat Mfg
Cole Hersee Co
Computer Instruments
Controls Co of Amer
Controls Switch
Cunningham Son & Co
Cutler-Hammer
Daven Co
Digitran Co
Dittmore Freimuth
Electric Regulator
Electro Development
Electro-Miniatures
Electrosnap
Electrospace Corp
Electro Switch Corp
Electro Tec Corp
Electronic Controls Inc
Elotec Corp
Federal Pacific
Gamewell Co
General Communication
General Devices
Goat Electronics
Graphik-Circuits
Grayhill Inc
Hamilton Watch Co
Haydon Switch Inc
Hickok Electrical Instr
Hughes Products
Industrial Devices Inc
Industrial Instrs Inc
J-B-T Instruments
Kellogg Switchboard
Kirkland Co H R
Kulka Electric
Land-Air Inc
Leeds & Northrup
Lewis Engrg Co
Licon Div
M-H Micro Switch Div
Mallory & Co P R
Model Engrg
McGill Mfg Co
Mossman Inc Donald P
Muirhead Instr
Mycalex Corp of Amer
North Electric Co
Pass & Seymore Inc
Pendar Inc
Pollak Corp Jos
Poly-Scientific Corp
Relay Sales Inc
Rotary Devices Corp
Shallcross Mfg Co
Stackpole Carbon
Subminiature Instr
Superior Carbon Prod
Sylvania Lighting Prods
Switchcraft Inc
Taurus Corp
Thermo Electric
Torsion Blance Co
Transistor Electronics
Ucinite Co
Ultronic Systems Corp
United Control Systems
U S Instrument Corp
WE-Gen Purpose Control

SWITCHES, Magnetic

Acro Division
Allen-Bradley
Automatic Electric
Automatic Switch Co
Clare & Co C P
Clark Controller
Cutler-Hammer
E-T-A Products
Ebert Electronics
Electro-Seal Corp
Electrosnap
Electronic Specialty Co
Fulton Sylphon Div
Furnas Electric
General Devices
GE Apparatus Sales Div
GE Gen Purpose Contrl
Gordos Corp
Guardian Electric
Hamilton Watch Co
Hamilton Watch Co
Hamlin Inc
Hathaway Instruments
Hughes Products
Jo-Bell Products
Lundy Mfg Corp
G E Gen Purpose Contr
Magnavox Co
Magnetico Inc
Mercoid Corp
Mercury Contacts
Molex Products
Monitor Controller Div
Murphy Mfg Inc
North Electric Co
Ovitron Corp
Philadelphia Scien Glass
Post Electronic
Reed Research Inc
Revere Corp of Amer
Rotary Devices Corp
Sloan Color Lite
Square D Co
WE-Gen Purpose Control
WE-Director Systems
Zenith Electric

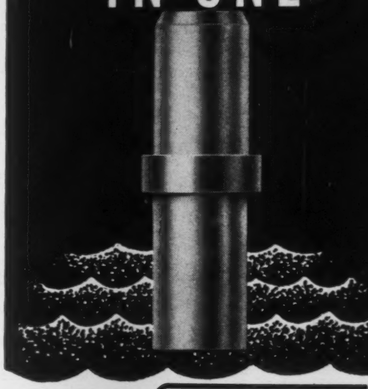
SWITCHES, Mercury

Almo Mfg Co
Automatic Electric
Bernco Engrg Corp
Clare & Co C P
Durakool Inc
Ebert Electronics
Energy Kontrols
General Controls
General Devices
Gordos Corp
H-B Instrument
Hagan Chem & Controls
Bobbs Corp, John W
McIlvaine O T
Mercoid Corp
Mercury Contacts
M-H Micro Switch Div
Newark Controls
Philadelphia Scien Glass
PIC Automation Ctls
Radar Relay Inc
Rodale Mfg Co
Tigerman Engineering

SWITCHES, Pneumatic

Associated Control

ALL FEATURES OF EVERY LIQUID LEVEL CONTROL IN ONE

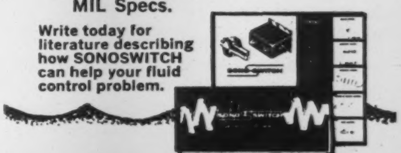


SONO SWITCH®

Check your liquid level control needs against this list. With SONOSWITCH ULTRASONIC Level Control you get them all—at one low price.

- ☐ WORKS IN ALL LIQUIDS—independent of dielectric conductivity, density, etc.
- ☐ NO MOVING PARTS—Shock-proof.
- ☐ EXPLOSION PROOF—hermetic seal.
- ☐ FAIL-SAFE—for all conditions.
- ☐ LOW INPUT POWER—in milliwatts.
- ☐ UNAFFECTED by SCALE, FROTH, VAPOR, DROPLETS
- ☐ HIGH ACCURACY—repeatability within thousandths of an inch.
- ☐ UNAFFECTED by PRESSURES to 2000 psi or TEMPERATURES (−430°F to +500°F)
- ☐ EASILY MOUNTED—standard fittings.
- ☐ SANITARY—no orifices to clog.
- ☐ CORROSION PROOF—Stainless Steel.
- ☐ ACCELERATION PROOF—MIL Specs.

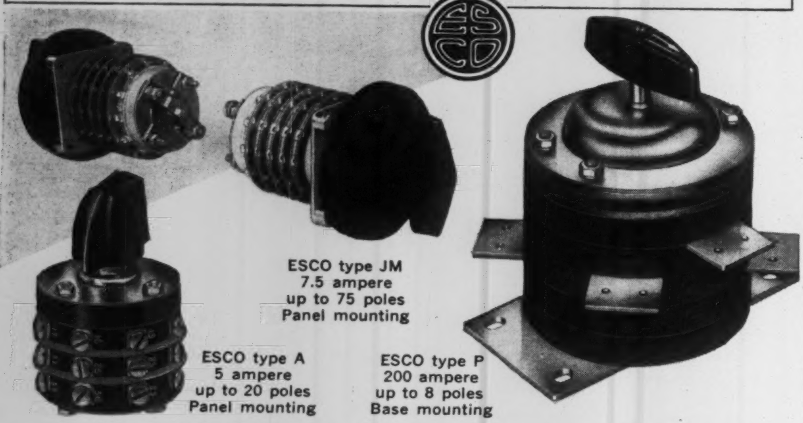
Write today for literature describing how SONOSWITCH can help your fluid control problem.



SONO SWITCH®
POWERTRON ULTRASONICS CORP.
EXPRESSWAY INDUSTRIAL PARK
Plainview, L.I., N.Y. Dept. ICS-2
Huntsville, Ala.—Los Angeles, Calif.

CIRCLE 327 ON READER-SERVICE CARD

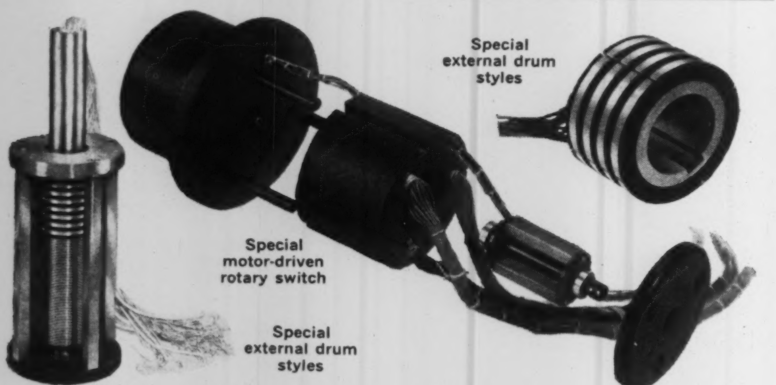
STANDARD and SPECIAL manual and motor-driven ROTARY SWITCHES



ELECTRO SWITCH CORP. designs, manufactures, and tests standard and special rotary switches for the most complex electric and electronic circuits. The standard switch types range from 2 to 16 positions and from 0.5 to 200 amperes.

Special rotary switches are assembled from standard parts and, if necessary, to meet MIL specifications.

Please write for latest catalog of manually operated rotary switches or for the catalog of ammeter, voltmeter, and other instrument switches.



SLIP-RING DIVISION of *Electro Switch Corp.* designs, manufactures, and tests slip-ring, brush-holder, and rotary-switch assemblies to satisfy any performance requirements, applicable MIL specifications, and most severe environmental conditions. Slip-ring types of assemblies provide reliable means for carrying electric signals between stationary and rotating elements of a system. Pancake and internal or external drum styles can be constructed.

Rotary switches provide high-speed multi-circuit switching with a-c or d-c motor drives. High-precision commutator segments range from subminiature dry-circuit sizes to heavy-duty power-handling sizes.

Please write for Bulletin 60-01 describing slip-ring and motor-driven rotary switches.

ESCO of WEYMOUTH
ELECTRO SWITCH CORP.
Weymouth (Boston 88), Massachusetts

CIRCLE 328 ON READER-SERVICE CARD

SWITCHES, Pressure and Vacuum

Acro Division
Aerotec Industries
Allen-Bradley
Alloy Bellows
American Standard
Amer Standard Controls
Astromics Div
Automatic Control Co
Barksdale Valves
Bendix Montrose Div
Bristol Co
Burton Mfg Co
Century Elx & Insts
Cole Hersee Co
Colman Engrg
Computer Instruments
Consol Controles
Consolidated Vacuum
Controls Co of Amer
Cooper Development
Custom Comp Switches
Cutler-Hammer
Daystrom/Wiancko
DeJur-Amsco Corp
Detroit Controls
Dietz Co Henry G
Dwyer Mfg F W
Ebert Electronics
Ellison Draft Gage
Fluid Mechanisms
Fredericks Company
Fulton Sylphon Div
Furnas Electric
General Controls
General Devices
General Kinetics
GE Apparatus Sales Div
G E Gen Purpose Contl
Giannini Controls Corp
Glassco Instr
Goat Co Inc Fred
Gorn Electric
Hagan Chem & Controls
Hamilton Watch Co
Hawk Tool & Engrg
Haydon Switch Inc
Helicoid Gage Div
Henschel Corp.
Hobbs Corp John W
Hoke Inc
IMC Magnetics
Janco Corp
Jennings Radio Mfg
Kidde Aero Space Div
Kinemotive Corp
Kollsman Instr Corp
Leonard Inc Wallace O
M-H Apparatus Contls
M-H Military Prods Grp
Mallory & Co P R
Mason-Meilan
Meletron Corp
Mercoid Corp
M-H Industrial Controls
Monitor Controller Div
Moore Products Co
Murphy Mfg Inc
Newark Controls
Pass & Seymour Inc
Robertshaw-Fulton Contl
Rochester Mfg Co
Rosemount Engrg Co
Sangamo Electric Co
Servomechanism Inc
Servonic Instruments
Sirco Products Inc
Square D Co
Tapeswitch Corp
Technology Instr Calif
Texas Instruments Incn
United Electric Controls
Universal Relay
U S Gauge Div
Vemaline Products
Vickers-A & E Center
Wallace & Tiernan
White Avionics Corp

SWITCHES, Pyrometer

Bristol Co
General Devices
Illinois Testing Labs
Leeds & Northrup
Lewis Engrg Co
M-H Brown Instrs Div
Thermo Electric
United Mineral & Chem
West Instrument
Wheelco Indus Instrs
Winslow Electronics Inc

SWITCHES, Rotary, Including Shaft Motion Types

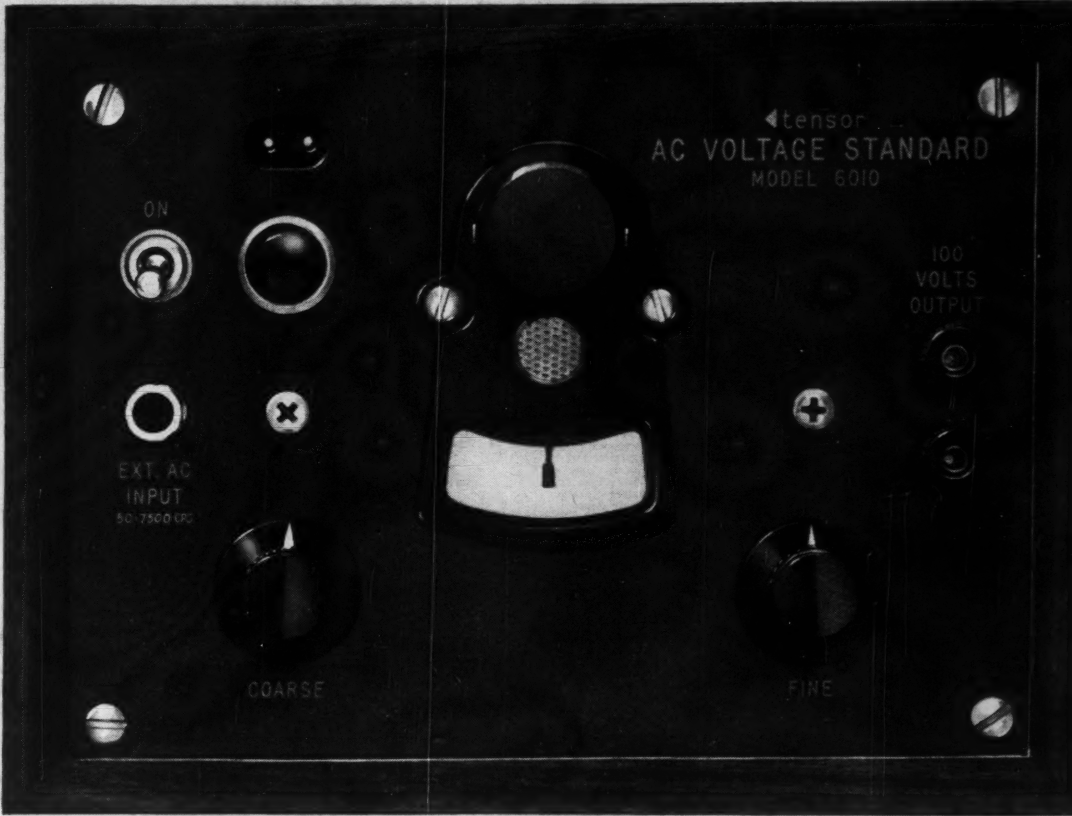
Acro Division
Advanced Technology Labs
Airflyte Electronics
Allegri-Tech
Allen-Bradley
Allied Radio
Allis-Chalmers
Applied Science Corp
Astromics Div
Automatic Control Co
Automatic Electric
Bin-Dicator Co
CTS Corporation
Carling Electric
Carter Mfg
Centralab Div
Chicago Dynamic Indus
Clare & Co C P
Cole Electric Co
Cole Hersee Co
Collectron Corp
Controls Co of Amer
Controls Switch
Couch Ordnance Inc
Cushman Precision Ind
Control Switch Div
Cutler-Hammer
Daven Co
Digitran Co
Disc Instruments
Dittmore-Freimuth
Eagle Signal
Eastern Specialty Co
Eastern Technical
Eicor Div
Electric Regulator
Electro Development
Electro-Mec
Electro-Miniatures
Electro-Seal Corp
Electrosnap
Electro Switch Corp
Electro Tec Corp
Euclid Electric & Mfg
Fairchild Controls
Farmer Electric
Federal Pacific
Furnas Electric
Gamewell Co
GE Apparatus Sales Div
GE Gen Purpose Ctl Dept
Gemco Electric Co
General Communication
General Devices
General Railway Signal
Gombos Co John
Graphik-Circuits
Graphite Metallizing
Grayhill Inc
Hamilton Watch Co
Hart Mfg Co
Hathaway Instruments
Hughes Products
Industrial Devices Inc
Industrial Timer Corp
Instr Development Labs
International Instr
J-B-T Instruments Inc
Janco Corp
Kahn & Co
Kearfott Div
Land-Air Inc
Ledex Inc
Leeds & Northrup
Lewis Engrg Co
Lind Instruments
Magnavox Co
Mallory & Co P R
Markite Corp
Meletron Corp
M-H Micro Switch Div
Micro-Lectric
Microwave Associates
Model Engrg & Mfg Corp
Muirhead Instrs Inc
Norman Hardy Assoc
North Electric Co
Oak Mfg Co
Ohmite Mfg Co
Pacific Scientific
Pass & Seymour Inc
Pollak Corp Jos
Poly-Scientific Corp
Precision Line Inc
Precision Mechanisms
Relay Sales Inc
Rixon Electronics
Rodale Mfg Co
Rotary Devices Corp
Shallcross Mfg Co
Sigma Instruments
Slip Ring Co
Spectrol Electronics
Stackpole Carbon
Standard Electrical Prods
Subminiature Instr
Superior Carbon Prod
TRG Inc
Technology Instr Calif
Technology Instr (Mass)
Texas Instruments Inc
Thermo Electric Co
Ucinite Co
United Control Systems
United Electrodynamics
United Mineral & Chem
U S Instrument Corp
WE-Gen Purpose Control
Westinghouse Air Brake

SWITCHES, Sealed

Acro Division
Airpax Electronics
Amer Standard Controls
Ampco Mfg Co
Amphenol IP DK Div
Amphenol-RF Prods Div
Astromics Div
Automatic Electric
Carling Electric
Clare & Co C P
Control Switch Div
Control Products
Controls Co of Amer
Cole Electric Co
Controls Switch
Cushman Precision Ind
Cutler-Hammer
Digitran Co
Daven Co
Durakool Inc
Ebert Electronics
Electro-Miniatures
Electro-Seal Corp
Electrosnap
Elotec Corp
Energy Kontrols
General Controls
General Devices
GE Apparatus Sales Div
Hart Mfg Co
Haydon Switch Inc
Inertia Switch Inc
Instr Development Labs
Janco Corp
Jo-Bell Products
Kinetics Corp
Kulka Electric
Ledex Inc
Licon Div
Lind Instr
McIlvaine O T
Metals & Controls Inc
M-H Micro Switch Div
Molded Insulation

CIRCLE 329 →

...until one comes along...



...use this tensor A.C. VOLTAGE STANDARD AS AN A.C. COUNTERPART TO THE D.C. STANDARD CELL.

Application of Model 6010 is as a voltage reference for A.C. calibration work.

The D.C. Standard Cell, developed in 1873 by L. Clark, was finally adopted in London in 1908.

Since 1949 Tensor has had poor J. M. working on an A.C. equivalent. While he has not yet succeeded, the development of the 1N825A Zener reference diode has made this model 6010 Standard possible.

. . . until he comes across . . . engineer J. M. suggests you buy the Tensor model 6010.

SPECIFICATIONS

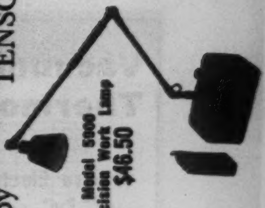
OUTPUT VOLTAGE:
100 volts
ACCURACY:
±0.1%
OUTPUT FREQUENCY:
60 cps internal or 50 - 7500 cps with external oscillator
CALIBRATION STABILITY:
minimum of three months
OUTPUT CURRENT:
up to 10 ma
INPUT POWER:
105 - 130 volts single phase AC at 60 cps
SIZE AND WEIGHT:
8" H x 8¼" L x 6⅛" D — 10 lbs.

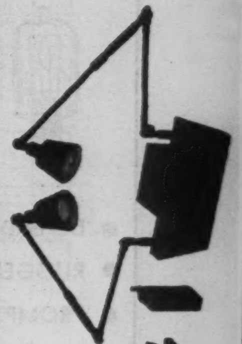
Price: **$197.00**

CONTACT YOUR TENSOR REPRESENTATIVE, OR WRITE TO US DIRECT

tensor ELECTRIC DEVELOPMENT COMPANY, INC.
1875 EASTERN PARKWAY, BROOKLYN 33, N. Y.

Take a look at the High-Intensity Precision Work Lamps Designed, Engineered and Manufactured by TENSOR.


Model 5900 Precision Work Lamp $46.50


Model 5917 Stereo Lamp $59.95

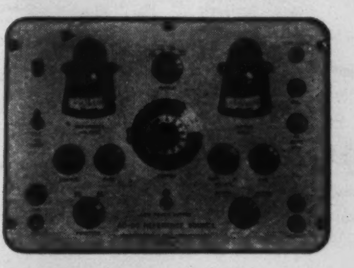
Model 5979 Sub-Miniature Lamp $14.95

Model 5975 Fold-Away Utility Lamp $17.50

Take a look at other Precision Test Instruments TENSOR Designs, Engineers and Manufactures.

MODEL 5880 INCREMENTAL ANALYZER

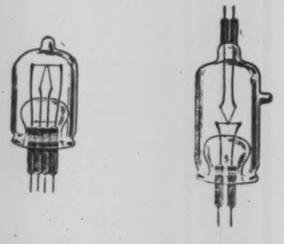
CIRCLE 393 ON READER-SERVICE CARD


MODEL 5890 PORTABLE REFERENCE SUPPLY

CIRCLE 394 ON READER-SERVICE CARD

MODEL 5846 ARBITRARY FUNCTION GENERATOR

CIRCLE 395 ON READER-SERVICE CARD



Vacuum ... Thermocouples

For
Precise Electrical Measurements
AC-DC and High Frequency
AC-DC Transfer Standards

- DEPENDABLE STABILITY
- RUGGED CONSTRUCTION
- PROMPT DELIVERY

For complete data send for our Catalog No. 90LA

AMERICAN THERMO-ELECTRIC CO.
1023 N. Fuller Avenue
Los Angeles 46, Calif.

CIRCLE 330 ON READER-SERVICE CARD

North Electric Co
Pendar Inc
Philadelphia Scien Glass
Pollak Corp Jos
Oak Mfg Co
Revere Corp of Amer
Shallcross Mfg Co
Rotary Devices Corp
Sloan Color Lite
Subminiature Instr
Tapeswitch Corp
Texas Instruments Inc
Thermal Controls Inc
United Electric Controls

SWITCHES, Snap Action

Acro Division
Allen-Bradley
Allied Control Co
American Standard
Amer Standard Controls
Ampco Mfg Co
Astromics Div
Bay-Tronic Co
CTS Corporation
Carling Electric
Carter Parts Co
Clare & Co C P
Control Switch Div
Control Products
Controls Co of Amer
Controls Switch
Custom Compo Switches
Cutler-Hammer
Daven Co
Detroit Controls
Ebert Electronics
Electrosnap
Electro Switch Corp
Fansteel Metallurgical
Fenwal Inc
Furnas Electric
General Controls
GE Apparatus Sales Div
GE Gen Purpose Ctl Dept
General Devices
Grayhill Inc
Guardian Electric
Hart Mfg Co
Haydon Switch Inc
Inertia Switch Inc
Jaidinger Mfg
Janco Corp
Jo-Bell Products
Joy-Mfg Co
Kay Electric
Kulka Electric
Ledex Inc
Licon Div
Linear Controls
Mallory & Co P R
Marco Industries
Meletron Corp
Mercoid Corp
Metals & Controls Inc
M-H Micro Switch Div
Molex Products
O & S Research Inc
Oak Mfg Co
Pass & Seymour
Pendar Inc
PIC Automation Ctls
Pollak Corp Jos
Rochester Mfg Co
Rodale Mfg Co
Sloan Color Lite
Square D Co
Stackpole Carbon
Tapeswitch Corp
Texas Instruments Inc
Thermal Controls Inc
Thermolyne Corp
Torsion Balance Co
Ucinite Co
Unimax Switch Div
United Electric Controls
Vemaline Products

SWITCHES, Stepping, including Motors, Step Type (see also Relays)

Aerovox Corp
Amphenol-RF Prods Div
Applied Science Corp
Astral Electronics
Astromics Div
Automatic Control Co
Automatic Electric
Automatic Timing & Contls
Automation Dev Corp
Clare & Co C P
Comar Electric
Controls Switch
Cunningham Son & Co
Curtiss-Wright
Cushman Precision Ind
Daven Co
Disc Instruments
Digitran Co
Furnas Electric
Eagle Signal
Electro-Seal Corp
Electro Switch Corp
Electro Tec Corp
Furnas Electric
General Devices
General Dynamics/Elx
Globe Industries
Giannini Controls Corp
Guardian Electric
Graphik-Circuits
Hathaway Instruments
Haydon Co A W
Hughes Products
Instr Development Labs
Intelex Systems Inc
Kinetics Corp
Land-Air Inc
Ledex Inc
Licon Div
Lind Instr
Muirhead Instrs Inc
North Electric Co
Oak Mfg Co
Relay Sales Inc
Rixon Electronic
Shallcross Mfg Co
Sigma Instruments
Superior Electric Co
Tapeswitch Corp
Tempo Instrument
Ucinite Co
United Electric Controls
United Electrodynamics
Universal Relay
U S Instrument Corp
Warco Industries

SWITCHES, Thermostatic

Alloy Bellows
Amer Standard Controls
Amot Controls Corp
Burling Instrument
Consol Controls
Control Products
Dales Co Franklin
Detroit Controls
E-T-A Products
Edison Industries T A
Fulton Syphon Div
G-V Controls
General Controls
General Devices
GE Apparatus Sales Div
Hart Mfg Co
Hawk Tool & Engrg
Industrial Timer Corp
Janco Corp
Mercoid Corp
Metals & Controls Inc
M-H Micro Switch Div
M-H Military Prods Grp
Molex Products
Murphy Mfg Inc
Newark Controls
Norwalk Thermostat Co
Philadelphia Scien Glass
Precision Thermometer
Robertshaw-Fulton Contl
Scaico Controls
Sirco Products Inc
Stevens Mfg Co
Texas Instruments Inc
Therm-O-Disc Inc
Ulanet Co George
United Control Corp
United Electric Controls
Valverde Labs
Vapor Heating Corp

SWITCHES, Time

AGA Division
Abrams Instrument
Aemco Inc
Airtronics Inc
Alina Corp
Allen-Bradley
Alto Scientific
Applied Electronics
Automatic Timing & Contls
Controls Co of Amer
Controls Switch
Cooper Development
Cutler-Hammer
Dimco-Gray
Durakool Inc
Electro-Seal Corp
Electronic Products
General Controls
General Devices
GE Apparatus Sales Div
Graphik-Circuits
Haydon Co A W
Haydon Co A W (Calif)
Hobbs Corp John W
Industrial Timer Corp
International Register
Johnson Service Co
Landis & Gyr
M-H Military Prods Grp
Mallory & Co P R
Maxson Electronics Corp
Miller-Harris Instr
Montgomery Mfg
Murphy Mfg Inc
Paragon Electric
PIC Automation Ctls
Precision Mechanisms
Precision Prods (Tulsa)
Rhodes Inc M H
Sangamo Electric Co
Scientific Industries
Square D Co
Subminiature Instr
Thermal Controls Inc
Technology Instr Calif
Tempo Instrument
United Electric Controls
Vemaline Products
Walser Automatic Timer
Western Design
Zenith Electric

SYNCHROS, including Transmitters, Receivers Differentials, Control Transformers, Receivers, (see also Servomotors—Cat. 5)

American Electronics
Beckman/Helipot Div
Bendix Eclipse-Pioneer
Bendix Montrose Div
Clifton Precision
Del Electronics
Electric Indicator
Ercona Corp
Exactel Instrument Co
Farrand Controls Inc
Feedback Controls Inc
Ford Instr
Giannini Controls Corp
Harowe Servo Controls
Henschel Corp
IMC Magnetics
Kearfott Div
M-H Boston Div
Model Engrg
Muirhead Instrs Inc
Norden Division
Oster Mfgrg John
Reeves Instr Corp
Richardson Scale Co
Sangamo Electric Co
Servo Systems Co
Servo-Tek Prod
Sig-Trans Inc
Summers Gyroscope
TRG Inc
U S Gauge Div
Vernitron Corp

TERMINALS, Blocks, Boards, and Shapes

Alden Products Co
Allen-Bradley
Amatom Electronic
American Lava Corp
American Pamcor Inc
AMP Inc
Ampco Mfg Co
Amphenol Connector Div
Amphenol IP DK Div
Armel Electronics
Atkins Technical Inc
Audio Development Co
Automatic Electric
Bay-Tronic Co
Bead Chain Mfg Co
Beckman/Helipot Div
Bernco Engineering
Buchanan Electl Prods
Burndy Corp
Cambridge Thermionic
Cannon Electric
Capitron Div
Circon Component
Curtis Dev & Mfg
Cutler-Hammer
Dejur Amsco
Designs for Tomorrow
Dittmore-Freimuth
ETC Inc
Eastern Reproductions
Elotec Corp
Empire Products Inc
Excellex Electronics
Federal Screw Prods
Flight Components
Garde Mfg Co
Gemco Electric Co
General Ceramics
General Dynamics/Elx
G E Gen Purpose Contl
General Radio
General Railway Signal
Goe Engineering Co
Graphik-Circuits
Janco Corp
Jones Div Howard B
Kavamil Co
Keystone Electronics
Kolton Electric
Kulka Electric
Laminated Sheet Pro
Leeds & Northrup
Lerco Div
Malco Mfg Co
Mandex Mfg Co Inc
Marathon Electric
Marathon Special Prods
Microdot Inc
Millen Mfg Co
Milton Ross Metals
Molded Insulation
Molex Products
National Tel-Tronics
North Electric Co
PIC Design Corp
Precision Connectors
Precision Metal Prods
Reisner Mfg Co W H
Richards Co Arklay S
Sealectro Corp
Seton Name Plate
Slip Ring Co
Sonex Inc
Space Products
Speed Electronics
Square D Co
States Company
Superior Carbon Prod
Taurus Corp
Thermo Electric Co
Tri-Dex Co
Ucinite Co
U S Instrument Corp
Vaco Products Co
Vector Electronic
Waldom Electronics
WE-Micarta Div
Wilmington Fibre
Winchester Electronics

TERMINALS, Hermetic

AMP Inc
American Lava Corp
Amphenol Connector Div
Burndy Corp
Cambridge Thermionic
Capitron Div
Ceramaseal Inc
Ceramatronics
Coors Procelain
Electronic Seals
Ercona Corp
Escon Inc
Garde Mfg Co
General Ceramics
Hermetic Seal Corp
Kulka Electric
Milton Ross Metals
National Tel-Tronics
Networks Elx Corp
Physical Sciences Corp
Philips Electronic
Sealtron Corp
Thor Ceramics Inc
Torwico Electronics
United Mineral & Chem
Winchester Electronics

TERMINATIONS, including Co-axial, Waveguide, etc.

Alford Mfg
Arra Electronics
Bogart Mfg
Burndy Corp
Ceramaseal Inc
Control Electronics
Douglas Microwave Co
ETC Inc
Empire Devices
Ercona Corp
Film Resistors
Filmohm Corp
General Microwave
General Radio
Hughes Aircraft
Malco Mfg Co
Narda Microwave Corp
New England Instr
Sealectro Corp
Sittler Corp
Sperry Microwave
Wacline Inc
Waveline Inc
Weinschel Engrg

THERMISTORS

Aero Research Instr
Atkins Technical Inc
Barnes Engineering
Capitron Div
Carbone Corp
Fenwal Electronics
GE Magnetic Materials
Gulton Industries
Hughes Aircraft
M-H Apparatus Contls Div
Microphase Corp
Microwave Associates
Molded Insulation
Nacimco Products
Narda Microwave Corp
Servo Corporation
Smith Mfg Co Inc
Sprague Electric Co
Tech Apparatus Bldrs
Thermo Products Co
Victory Engrg Corp
Yellow Springs Instr

THERMOCOUPLE EXTENSION WIRE in Multiple Pair Cables

Advanced Dynamics
Aero Research Instr
Amperex Electronic
Bristol Co
Champion Wire & Cable
Continental Sensing
Dekoron Prods Div
Electronic Heat Treating
Engelhard Industries
Harco Labs
Illinois Testing Labs
Ind Pyrometer & Supply
Lewis Engrg Co
M-H Brown Instrs Div
Rescon Electronics
Revere Corp of Amer
Thermo Electric Co
Thermo Products
West Instrument Corp
Wheelco Indus Instrs

THERMOCOUPLE INSULATORS

Aero Research Instr
Ampco Mfg Co
Amperex Electronic
Barber-Colman
Bristol Co
Conax Corp
Continental Sensing Inc
Coors Procelain
Du-Co Ceramics
Electronic Heat Treating
Gordon Co Claud S
Harco Labs
Illinois Testing Labs
Ind Pyrometer & Supply
Leeds & Northrup
McDanel Refractory
M-H Brown Instrs Div
Nanmac Corp
Pacific Scientific
Physical Sciences Corp
Pyrometer Co of Amer
Pyrometer Instr Co
Richards Co Arklay S
Saxonburg Ceramics
Smith Thermotronics Inc
Thermo Electric
Thermo Products Co
Trinity Equipment
West Instrument
Wheelco Indus Instrs

THERMOCOUPLE WIRE AND COMPONENTS, including Extension Lead Wire

Advanced Dynamics
Aero Research Instr
AMPCO Mfg Co
Amperex Electronic
Atkins Technical Inc
Barber-Colman
Bishop & Co J
Bram Metallurgical Chem
Bristol Co
Champion Wire & Cable
Conax Corp
Continental Sensing
Dekoron Prods Div
Dyna-Empire Inc
Electronic Heat Treating
Epic Inc
Engelhard Industries
Foxboro Company
Gordon Co Claud S
Harco Labs
Illinois Testing Labs
Ind Pyrometer & Supply
Kanthal Corp
Leeds & Northrup
Lewis Engrg Co
McHugh & Son Raymond F
M-H Brown Instrs Div
Nanmac Corp
Pacific Scientific
Propulsion Dev Labs
Pyro-Electric Inc
Pyro Service Co
Pyrometer Co of Amer
Pyrometer Instr Co
Revere Corp of Amer
Richards Co Arklay S
Slocomb Co J T
Smith Thermotronics Inc
Thermo Electric
Thermo Products
Trinity Equipment
Warren Wire Co
West Instrument
Wheelco Indus Instrs

THERMOCOUPLES, Vacuum

Advanced Dynamics
Aero Research Instr
American Thermo Elec
Amperex Electronic
Barber-Colman
Consolidated Vacuum
Continental Sensing Inc
Daystrom/Weston
Electronic Heat Treating
Epic Inc
Fredericks Company
GE Apparatus Sales Div
Gordon Co Claud S
Harco Labs
High Temperature Instrs
High Vacuum Equip
Hughes Vacuum Tube
NRC Equipment
Physical Sciences Corp
Propulsion Dev Labs
Pyro-Electric Inc
Pyrometer Co of Amer
Pyrometer Instr Co
Rawson Electrical Instr
Research Council Inc
Sensitive Research Inst
Smith Thermotronics Inc
Thermo Products Co
Wheelco Indus Instrs
Winslow Electronics Inc
Yokogawa Electric Works

THERMOELECTRIC DEVICES

American Thermo Elec
General Thermoelectric Corp
Harco Labs
Hughes Aircraft
Materials Electronic Prods
Materials Elx Prods
Pace Engrg Co
Rescon Electronics
Richards Co Arklay S
Servo Corporation
Therm-O-Disc Inc
Thermo Electric Co
Transitron Electronic
U S Sonics Corp
Westinghouse Semicond

TRANSDUCERS, Ultrasonic

Acoustica Assoc
Arnold Engineering
Atlantic Research
Bendix Pioneer-Central
Branson Ultrasonic
Centralab Div
Chesapeake Instr
Circo Ultrasonic
Curtiss Wright
Dejur-Amsco Corp
Dukane Corp
Erie Resistor
GE Heavy Mil Elx Dept
Giannini Controls Corp
Gulton Industries Inc
Hidyne Inst & Engrg
Intl Electronics
Kearfott Div
L and R Mfg Co
Land-Air Inc
Massa Div
McKenna Labs
Microdot Inc
Motorola Military Elx
Narda Ultrasonic
Natl Ultrasonic
Norden Division
Powertron Ultrasonics
Princeton Div
RCA Defense Electronic
Raytheon/Comm Apparatus
Sangamo Electric Co
Seegers Mfg
Sprague Electric Co
Ultrasonic Industries
United Aero Prod
U S Sonics Corp
Valpey Crystal Corp

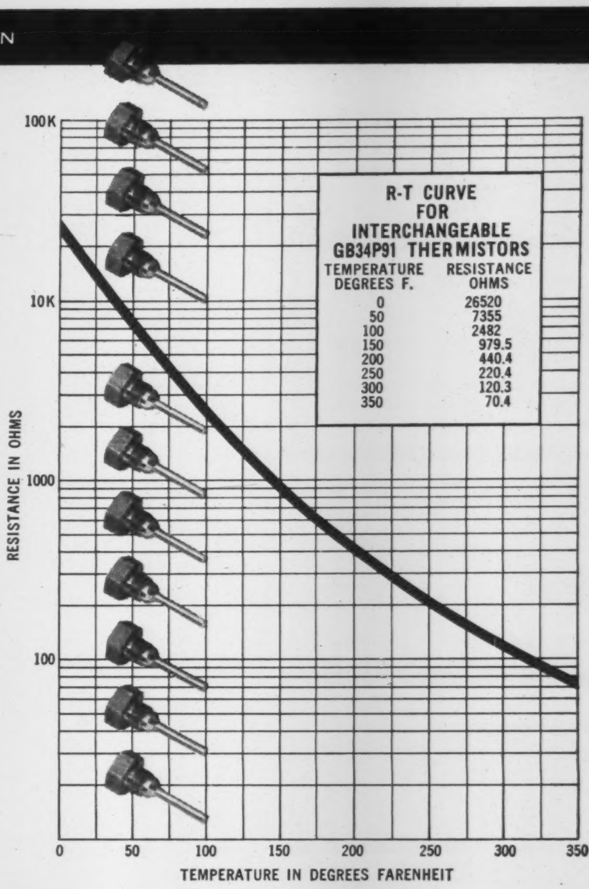
TRANSFORMERS, Constant Voltage (see also Voltage Regulators—Cat. 3)

Airpax Electronics
Allis-Chalmers
Amelco Inc
American Optical Co
Amplifier Corp of Amer
Atlas Engrg Co
Basler Electric
Calif Magnetic Control
Capitron Div AMP
Chicago Std Transformer
Cycle Transformer Corp
Dietz Design
DJECO
Durakool Inc
Elasco Inc
Electron Arc
Electro-Seal Corp
Electrosolids Corp
Freed Transformer
Gates Electronic
GE Apparatus Sales Div
Goslin Electric
Green Rectifier
Gulton Industries
Harder Co Donald C
Hevi-Duty Electric
Industrial Transformer
Interelectronics
K V Transformer

BREAKTHROUGH! IN THERMISTOR DESIGN

Fenwal Electronics' new "identical" thermistors permit complete interchangeability! What do you need from a thermistor in the way of performance? Reliability? Extreme stability? High shock resistance? Long life? Fenwal Electronics can supply it. But Fenwal Electronics' thermistors provide an additional important characteristic all their own: **they can be supplied with identical resistance temperature curves.**

That means that now, for the first time, you can have complete interchangeability. It means you can rely absolutely on consistently accurate resistance changes versus temperature of Fenwal Electronics' thermistors. It means also you can now achieve accurate, multi-point temperature indication or control through a single system without having to calibrate out each individual sensor.



R-T CURVE FOR INTERCHANGEABLE GB34P91 THERMISTORS

TEMPERATURE DEGREES F.	RESISTANCE OHMS
0	26520
50	7355
100	2482
150	979.5
200	440.4
250	220.4
300	120.3
350	70.4

FROM FENWAL ELECTRONICS . . . THE MOST COMPLETE LINE OF PRECISION THERMISTORS

GLASS PROBES & BEADS

— 0.006" to 0.100" diameter. Resistance values: 500 ohms to 100 megohms

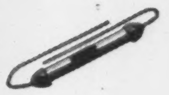
DISCS . . .

— 0.1" to 1" diameter. Resistance values: 5 ohms to 1,000 ohms

WASHERS . . .

— .75" diameter. Resistance values: 5 ohms to 3000 ohms

RODS . . .

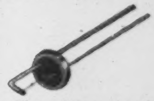


— 0.053" to 0.173" diameter varying lengths. Resistance values: 500 ohms to 500,000 ohms

PROBE Assemblies . . .

— Built to your specific requirements,* enclosed and mounted in individual housings or "packages" and ready to install

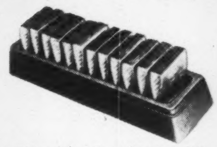
E-I Matched pairs



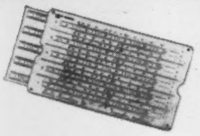
— Thermistor beads matched to voltage current characteristics and mounted on special hermetically sealed stems, designed for use in thermal conductivity gas analysis instruments.

FROM FENWAL ELECTRONICS . . . MORE HELP ON THERMISTOR PROBLEMS

- Complete thermistor engineering service backed by 20 years field experience

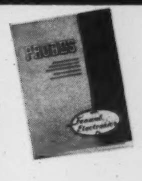


- Thermistor Experimental Kit — to help you expedite operations at the bread board stage. Just $19.95 at electronics jobbers



- New Thermistor "Computer" — 5" X 8" "computer" reduces lengthy computations to single "slide rule" setting. Yours for the asking

- New Thermistor Catalog EMC-3



- New Probe and Housing Brochure — Gives selection of probe designs

For complete information, or the name of the Fenwal Representative in your area, write:

Fenwal Electronics

63 FOUNTAIN STREET, FRAMINGHAM, MASSACHUSETTS

*Probes can be supplied individually calibrated at all desired temperatures. When interchangeability is required, they can be supplied with identical resistance-temperature characteristics.

CIRCLE 331 ON READER-SERVICE CARD

PULSE TRANSFORMERS
For digital computers and other low-level circuitry. Minimum rise time at high repetition rates up to 10 mc.

MAGNETIC SHIFT REGISTERS
Encapsulated core-diode units, available in single-bit and multi-bit assemblies, with or without bit drivers.

TOROIDAL INDUCTORS
Inductance tolerances to ±1%. Available in open-coil, dipped, encapsulated, and hermetically-sealed styles.

SPECIAL PRODUCTS DIVISION
SPRAGUE ELECTRIC CO.
NORTH ADAMS, MASS.

CIRCLE 332 ON READER-SERVICE CARD

Kavamil Co
Kelvin Electric
Kepco Inc
Land-Air Inc
Megadyne Elx
Milro Controls
Natl Electronics (Wyo)
Perkin Engrg Corp
Permoflux Products
Power Controls Div
Precise Measurements Co
Raytheon/Comm Apparatus
Raytheon/Microwave
Reliance Elect & Engrg
Sciaky Bros Inc
Sensitive Research Instr
Sola Electric
Standard Winding
Sterling Transformer
Sylvania Lighting Prods
Sylvania Special Prods
Tech Apparatus Bldrs
Telectro Industries
Thordarson Meisner
United Transformer Corp
Varo Mfg Co
Virginia Electronics
WE-Director Systems
Westinghouse Electric
Wheeler Electronic Corp

TRANSFORMERS, High Frequency

ACDC Electronics Inc
Airpax Electronics
Allen Avionics Inc
Aladdin Electronics
Amelco Inc
Atlas Engrg Co
Basler Electric
Bulova Watch Co
Calif Magnetic Control
Chicago Std Transformer
Communication Access Co
Cycle Transformer Corp
Del Electronics
Dietz Design
DJECO
Douglas Microwave Co
Durakool Inc
Electrodynamic Instr
Electro Engrg Works
ESC Electronics Corp
Essex Electronics
Fugle-Miller Labs
GE Apparatus Sales Div
GE XRay Dept
General Instrument Corp
General Microwave
General Radio
Goslin Electric
Gulton Industries
Harder Co Donald C
Industrial Transformer
Interelectronics
K V Transformer
Kavamil Co
Knopp Inc
JFD Electronics
Laboratory for Electronics
Land-Air Inc
Merit Coil & Transformer
Microtran Co
Miller Co J W
Milro Controls
Natl Electronics (Wyo)
North Hills Electric
PCA Electronics
Pacific Instrument Co
P and H Electronics
Permoflux Products
Philco Corp
Polyphase Instr Co
Prototype Transformer
Raytheon/Comm Apparatus
Sangamo Electric Co
Servomechanism Inc
Spellman High Voltage
Standard Winding
Stavid Div
Sterling Transformer
Sylvania Lighting Prods
Sylvania Special Prods
Telectro Industries
Tenco Electronics
Thordarson Meksner
Trak Electronics
Transformers Inc
Trenton Transformer
Topaz Transformer Prods
United Transformer
Universal Toroid Coil
Varo Mfg Co
Virginia Electronics
Warren Transformer
Wells Electronics
Westinghouse Electric

TRANSFORMERS, Impedance

ACDC Electronics Inc
Acro Electronic Prods
Allen Avionics Inc
Altec Lansing Corp
Amelco Inc
Arnold Magnetics Corp
Atlas Engrg Co
Audio Development Co
B & B Magnetics Co
Basler Electric
Bulova Watch Co
Calif Magnetic Control
Chicago Std Transformer
Coast Coil
Communication Access Co
Components Corp
Cycle Transformer Corp
Dietz Design
DJECO
Douglas Microwave Co
Durakool Inc
Elasco Inc
Electrical Windings
Electrodynamics Instr
Electro Engrg Works
Entron Inc
Ferranti Electric
Freed Transformer
Fugle-Miller Labs
General Radio
Goslin Electric
Gulton Industries
Harder Co Donald C
Industrial Transformer
Interelectronics
JB Electronic
JFD Electronics
James Vibrapower Co
Kavamil Co
Kelvin Electric
Lynch Communication
Magnetico Inc
Mercury Transformer
Merit Coil & Transformer
Microtran Co
Miller Co J W
Milro Controls
Natl Electronics (Wyo)
Newport Scientific Co
North Hills Electric
N Y Transformer
North Hills Electronincs
Ortho Filter Corp
Pacific Instrument Co
P and H Electronics
Permoflux Products
Prototype Transformer
Polyphase Instr Co
Raytheon/Comm Apparatus
Raytheon/Microwave
Servomechanism Inc
Sterling Transformer
Standard Winding
Sterling Transformer
Sylvania Lighting Prods
Sylvania Special Prods
Telectro Industries
Tenco Electronics
Thordarson Meksner
Topaz Transformer Prods
Toroids Unlimited
Transformers Inc
Trenton Transformer
United Transformer
Varo Mfg Co
Virginia Electronics
Warren Transformer
Wells Electronics

TRANSFORMERS, Input, Output, and Interstage, including AF, IF, and RF

ACDC Electronics Inc
A R & T Electronics Inc
Acro Electronic Prods
Aerovox Corp
Airpax Electronics
Aladdin Electronics
Allen Avionics Inc
Atlas Engrg Co
Altec Lansing Corp
Amelco Inc
Amplifier Corp of Amer
Arnold Magnetics Corp
Audio Development Co
B & B Magnetics Co
Basler Electric
Bendix Radio Div
Bulova Watch Co
CTS Corporation
Caddell Burns Mfg
Calif Magnetic Control
Cambridge Thermionic
Campbell Co
Carol Electronics
Chicago Std Transformer
Coast Coil
Columbia Technical
Communication Access Co
Cycle Transformer Corp
Dale Electronics
Dietz Design
DJECO
Dresser Elx/SIE Div
Durakool Inc
Dyna-Empire Inc
Elasco Inc
Electrical Windings
Electrodynamic Instr
Electro Powerpacs
Electro Engrg Works
Electro-Voice Inc
Ferranti Electric
Forbes and Wagner
Freed Transformer
Fugle-Miller Labs
General Instrument Corp
General Radio
Goslin Electric
Harder Co Donald Co
Illumitronic Engrg
Industrial Transformer
Interelectronics
JB Electronic
James Vibrapower Co
K V Transformer
Kavamil Co
Kelvin Electric
Kessler Co Inc Frank
Laboratory for Electronics
Lockheed Electronics
Magnetico Inc
Melcor Electronics Corp
Mercury Transformer
Merit Coil & Transformer
Microtran Co
Millen Mfg Co
Miller Co J W
Milro Controls
Natl Electronics (Wyo)
New England Transformer
North Hills Electric
North Hills Electronics
N Y Transformer
Nytronics Inc
Ortho Filter Corp
Penn-East Engrg Corp
P and H Electronics
Permoflux Products
Philco Corp
Polyphase Instr Co
Prototype Transformer
Raytheon/Comm Apparatus
Raytheon/Microwave
Sangamo Electric Co
Servomechanism Inc
Specialties Inc
Standard Electrical Prods
Standard Winding
Stavid Div
Sterling Transformer
Sylvania Lighting Prods
Sylvania Special Prods
Technitrol Engrg
Telectro Industries
Tenco Electronics
Thordarson Meksner
Topaz Transformer Prods
Toroids Unlimited
Trak Electronics
Transformers Inc
Trenton Transformer
United Mineral & Chem
United Transformer
U S Electronics
U S Sonics Corp
Universal Toroid Coil
Varo Mfg Co
Virginia Electronics
Vitro Electronics
Warren Transformer
Wells Electronics
Wheeler Electronic Corp

TRANSFORMERS, Instrument including Current and/or Potential, Laboratory

ACDC Electronics Inc
Airpax Electronics
Allis-Chalmers
Altec Lansing Corp
Atlas Engrg Co
American Optical Co
Annis Co R D
Arnold Magnetics Corp
Associated Research
Basler Electric
Calif Magnetic Control
Campbell Co
Capitron Div AMP
Coast Coil
DJECO
Davenport Mfg
Daystrom/Weston
Del Electronics
Dietz Design
Dresser Elx/SIE Div
Durakool Inc
Elasco Inc
Electrical Windings
Electro Powerpacs
Electrodynamic Instr
Electrosolids Corp
Epic Inc
Esterline-Angus
GE Apparatus Sales Div
Goslin Electric
Harder Co Donald C
Hevi-Duty Electric
Industrial Transformer
Interelectronics
JB Electronic
K V Transformer
Kavamil Co
Kelvin Electric
Knopp Inc
Landis & Gyr
Mico Instr Co
Microdot Inc
Microtran Co
Milro Controls
N Y Transformer
Natl Electronics (Wyo)
Newport Scientific Co
Ortho Filter Corp
Pearson Electronics
Permoflux Products
Polyphase Instr Co
Prototype Transformer
Ram Meter Inc
Raytheon/Comm Apparatus
Raytheon/Microwave
Sangamo Electric Co
Sensitive Research Instr
Servomechanism Inc
Specialties Inc
Standard Winding
Sterling Transformer
Superior Electric Co
Sylvania Lighting Prods
Sylvania Special Prods
Tech Apparatus Bldrs
Telectro Industries
Telex/Lumen
Tenco Electronics
Thordarson Meksner
Topaz Transformer Prods
Toroids Unlimited
Transformers Inc
Trenton Transformer
United Transformer Corp
Universal Toroid Coil
Varo Mfg Co
Virginia Electronics
Wacline Inc
Warren Transformer
Westinghouse Electric

TRANSFORMERS, Insulation Testing

ACDC Electronics Inc
Associated Research
Atlas Engrg Co
Calif Magnetic Control
Carad Corp
Cycle Transformer Corp
DJECO
Del Electronics
Dietz Design
Durakool Inc
Electrical Winding
Electro Engrg Works
GE Apparatus Sales Div
Gates Electronic Co
Goslin Electric
Hevi-Duty Electric
Industrial Instrs Inc
Industrial Transformer
JB Electronic
Kavamil Co
Microtran Co
Natl Electronics (Wyo)
Permoflux Products
Peschel Electronics
Prototype Transformer
Raytheon/Comm Apparatus
Raytheon/Microwave
Servomechanism Inc
Spellman High Voltage
Sterling Transformer
Sylvania Lighting Prods
Sylvania Special Prods
Tech Apparatus Bldrs
Telectro Industries
Thordarson Meksner
Transformers Inc
Trenton Transformer
United Transformer Corp
Varo Mfg Co
Virginia Electronics
Warren Transformer
Zeiss Inc Carl

TRANSFORMERS, Isolation

ACDC Electronics Inc
Airpax Electronics
Altec Lansing Corp
Amelco Inc
Amplifier Corp of Amer
Arnold Magnetics Corp
Atlas Engrg Co
Audio Development Co
B & B Magnetics Co
Basler Electric
Bendix Radio Div
Calif Magnetic Control
Campbell Co
Carad Corp
Carol Electronics
Chicago Std Transformer
Coast Coil
Communication Access Co
Control Corp
Cycle Transformer Corp
Del Electronics
Dietz Design
DJECO
Durakool Inc
Elasco Inc
Elcor Inc
Flectrical Windings
Electrodynamic Instr
Electro Engrg Works
Electrosolids Corp
Freed Transformer
Gates Electronic
General Radio
Gertsch Products Inc
Goslin Electric
Green Rectifier
Harder Co Donald C
Heath Co
Hevi-Duty Electric
Industrial Transformer
JB Electronic
Jeffries Transfoomer
K V Transformer
Kavamil Co
Kearfott Div
Lynch Communication
Melcor Electronics Corp
Mercury Transformer
Merit Coil & Transformer
Microdot Inc
Microtran Co
Natl Electronics (Wyo)
N Y Transformer
New England Transformer
Newport Scientific Co
North Atlantic Indust
North Hills Electronics
Pacific Instrument Co
Perkin Engrg Corp
Permoflux Products
Polyphase Instr Co
Prototype Transformer
Raytheon/Comm Apparatus
Raytheon/Microwave
Sangamo Electric Co
Servomechanism Inc
Specialties Inc
Spellman High Voltage
Standard Electrical Prods
Standard Winding
Sterling Transformer
Sylvania Lighting Prods
Sylvania Special Prods
Telectro Industries
Tenco Electronics
Thordarson Meksner
Topaz Transformer Prods
Toroids Unlimited
Transformers Inc
Trenton Transformer
United Transformer Corp
Varo Mfg Co
Warren Transformer
Wheeler Electronic Corp

TRANSFORMERS, Microwave

ACDC Electronics Inc
Airtron Inc
Arra Electronics
Basler Electric
Bendix Radio Div
Communication Accessories
Del Electronics
Dietz Design
DJECO
Douglas Microwave Co
Durakool Inc
Freed Transformer
Fugle-Miller Labs
Goslin Electric
Industrial Transformer
JB Electronic
K V Transformer
Kavamil Co
Kearfott Div
Merit Coil & Transformer
Microtran Co
P and H Electronics
Perkin Engrg Corp
Philco Corp
Polyphase Instr Co
Prototype Transformer
Raytheon/Comm Apparatus
Raytheon/Microwave
Sage Laboratories
Sperry Gyroscope
Sperry Microwave
Standard Winding
Stavid Div
Sterling Transformer
Sylvania Lighting Prods
Sylvania Special Prods
Telectro Industries
Telerad Div
Thordarson Meksner
Toroids Unlimited
Trak Electronics
Trenton Transformer
Turbo Machine Co
United Transformer
Valor Instruments
Varo Mfg Co
Virginia Electronics
Warren Transformer
Waveline Inc
Wheeler Electronic Corp

TRANSFORMERS, Phasing

ACDC Electronics Inc
Atlas Engrg Co
Basler Electric
Bendix Radio Div
Calif Magnetic Control
Communication Accessories
Dietz Design
DJECO
Durakool Inc
ESC Corp
Electrical Windings
Electro Engrg Works
Freed Transformer
GE Apparatus Sales Div
Gertsch Products Inc
Goslin Electric
Green Rectifier
Hevi-Duty Electric
Industrial Transformer
Interelectronics
JB Electronic
Jeffries Transformer
K V Transformer
Kavamil Co
Knopp Inc
Microtran Co
Milro Controls
N Y Transformer
Natl Electronics (Wyo)
P and H Electronics
Perkin Engrg Corp
Permoflux Products
Prototype Transformer
Raytheon/Microwave
Servomechanism Inc
Specialties Inc
Standard Winding
Sterling Transformer
Sylvania Lighting Prods
Sylvania Special Prods
Telectro Industries
Thordarson Meksner
Toroids Unlimited
Trenton Transformer
United Transformer Corp
Virginia Electronics
Warren Transformer
Wheeler Eelctronic Corp

TRANSFORMERS, Power

ACDC Electronics Inc
Acro Electronics Prods
Airpax Electronics
Altec Lansing Corp
Amelco Inc
Amer Television & Radio
Amplifier Corp of Amer
Arnold Magnetics Corp
Atlas Engrg Co
Audio Development Co
B & B Magnetics Co
Basler Electric
CTS Corporation
Calif Magnetic Control
Campbell Co
Capitron Div AMP
Carol Electronics
Carruthers & Fernandez
Chicago Std Transformer
Coast Coil
Communication Accessories
Control Corp
Cycle Transformer Corp
Del Electronics
Dietz Design
Dittmore-Freimuth
DJECO
Durakool Inc
EMP Electronics Res Lab
Elasco Inc
Elcor Inc
Electrical Windings
Electro Engrg Works
Electro Powerpacs
Electrodynamic Instr
Electron Arc
Electrosolids Corp.
Ferranti Electric
Freed Transformer
GE Apparatus Sales Div
General Controls
General Railway Signal
Goslin Electric
Green Rectifier
Harder Co Donald C
Hevi-Dury Electric
Industrial Rectifier
Industrial Transformer
Interelectronics
JB Electronic
Jack & Heintz Inc
James Vibrapowr Co
Jeffries Transformer
K V Transformer
Kavamil Co
Kelvin Electric
Kolton Electric
Laboratory for Electronics
Land-Air Inc
Lockheed Electronics
Megadyne Elx
Mercury Transformer
Merit Coil & Transformer
Microdot Inc
Microtran Co
Milro Controls
N Y Transformer
Natl Electronics (Wyo)
New England Transformer
Ortho Filter Corp
Ortho Magnetics Inc
Pacific Instrument Co

Perkin Engrg Corp
Permoflux Products
Philco Corp
Polyphase Instr Co
Prototype Transformer
Ramm Rectifier Co
Raytheon/Comm Apparatus
Raytheon/Microwave
Sangamo Electric Co
Servomechanism Inc
Sola Electric
Spellman High Voltage
Sperry Gyroscope
Sprague Engineering
Square D Co
Standard Electrical Prods
Standard Winding
Stavid Div
Sterling Transformer
Strong Electric Corp
Sylvania Lighting Prods
Sylvania Special Prods
Tech Apparatus Bldrs
Telectro Industries
Tenco Electronics
Thordarson Meksner
Topaz Transformer Prods
Toroids Unlimited
Torwico Electronics
Tracerlab-Keleket
Transformers Inc
Trenton Transformer
United Transformer Corp
Universal Toroid Coil
U S Electronics
Varo Mfg Co
Virginia Electronics
Warren Transformer
Westinghouse Electric
Wheeler Electronic Corp

TRANSFORMERS, Pulse

ACDC Electronics Inc
Airpax Electronics
Aladdin Electronics
Altec Lansing Corp
Artronic Instr Co
Atlas Engrg Co
B & B Magnetics Co
Bendix Radio Div
Berkshire Laboratories
Bulova Watch Co
Burmac Electronics
Burroughs Corp
Calif Magnetic Control
Campbell Co
Capitron Div AMP
Carad Corp
Carol Electronics
Chicago Std Transformer
Communication Access Co
Cycle Transformer Corp
Del Electronics
Dietz Design
Dittmore-Freimuth
Dresser Elx/SIE Div
Durakool Inc
EMP Electronics Res Lab
ESC Corp
Erie Resistor
Essex Electronics
Filtron Co
Forbes and Wagner
Freed Transformer
GE Apparatus Sales Div
Goslin Electric
Gudeman Co
Gudeman Co of Calif
Hamilton Watch
Harder Co Donald C
Hevi-Duty Electric
Industrial Transformer
JB Electronic
JFD Electronics
K V Transformer
Kavamil Co
Kelvin Electric
Laboratory for Electronics
Megadyne Elx
Merit Coil & Transformer
Microdot Inc
Microtran Co
Milro Controls
N Y Transformer
New England Transformer
North Hills Electric
North Hills Electronics
Ortho Filter Corp
PCA Electronics
Pacific Instrument Co
Packard Bell
Pearson Electronics
Perkin Engrg Corp
Permoflux Products
Philco Corp
Polyphase Instr Co
Prototype Transformer
Pulse Engrg Inc
Raytheon/Comm Apparatus
Raytheon/Microwave
Rixon Electronics
Sangamo Electric Co
Servomechanism Inc
Spellman High Voltage
Sperry Gyroscope
Sprague Electric Co
Standard Winding
Stavid Div
Sterling Transformer
Sylvania Lighting Prods
Sylvania Special Prods
Technitrol Engrg
Telectro Industries
Tenco Electronics
Thordarson Meksner
Topaz Transformer Prods
Toroids Unlimited
Transformers Inc
United Transformer Corp
Universal Toroid Coil
Valor Instruments
Varo Mfg Co
Warren Transformer
Wells Electronics
Westinghouse Electric
Wheeler Electronic Corp

TRANSFORMERS, Split Core

ACDC Electronics Inc
Annis Co R B
Arnold Engineering
Basler Electric
Calif Magnetic Control
Capitron Div AMP
Carruthers & Fernandez
Communication Accessories
Del Electronics
Dietz Design
Durakool Inc
EMP Electronics Res Lab
Electrical Windings
Electrodynamic Instr
Freed Transformer
GE Apparatus Sales Div
Goslin Electric
Hevi-Duty Electric
Interelectronics
James Vibrapowr Co
Knopp Inc
Mercury Transformer
Microtran Co
N Y Transformer
Perkin Engrg Corp
Tech Apparatus Bldrs
Telectro Industries
Transformers Inc
Trenton Transformer
United Transformer
Universal Toroid Coil
Varo Mfg Co
Warren Transformer

TRANSFORMERS, Ultrasonic

Acoustica Assoc
Atlas Engrg Co
Audio Development Co
Basler Electric
Calif Magnetic Control
Dietz Design
Durakool Inc
Electrodynamic Instr
Electro Engrg Works
Electron Arc
Ferranti Electric
Freed Transformer
Fugle-Miller Labs
Goslin Electric
Gulton Industries
Industrial Transformer
Interelectronics
J B Electronic
K V Transformer
Merit Coil & Transformer
Microtran Co
N Y Transformer
Natl Electronics (Wyo)
Natl Ultrasonic
North Hills Electric
North Hills Electronics
Pearson Electronics
Prototype Transformer
Raytheon/Comm Apparatus
Sangamo Electric Co
Standard Winding
Sterling Transformer
Sylvania Lighting Prods
Sylvania Special Prods
Telectro Industries
Tenco Electronics
Thordarson Meksner
Topaz Transformer Prods
Transformers Inc
Trenton Transformer
United Transformer
U S Sonics Corp
Varo Mfg Co
Warren Transformer
Wells Electronics

TRANSFORMERS, Variable, including Autotransformers

ACDC Electronics Inc
Airpax Electronics
Allen Avionics Inc
Allis-Chalmers
Avionic Supply
Basler Electric
Calif Magnetic Control
Canadian Marconi
Chicago Std Transformer
Collins Corp G L
Coast Coil
Del Electronics
Dietz Design
DJECO
Durakool Inc
Eastern Specialty Co
Eder Instrument
Electrical Windings
Electrodynamic Instr
Electro Scientific Ind
Electron Arc
Electrosolids Corp
Erb & Gray
Freed Transformer
GE Apparatus Sales Div
Gates Electronic
General Radio
Gertsch Products Inc
Goslin Electric
Green Rectifier
Hevi-Duty Electric
Industrial Rectifier
JB Electronic
JFD Electronics
James Vibrapowr Co
Jeffries Transformer
K V Transformer
Kavamil Co
Land-Air Inc
Mercury Transformer
Merit Coil & Transformer
Microdot Inc
Microtran Co
Milro Controls
Ohmite Mfg Co
Pacific Instrument Co
Permaflux Products
Prototype Transformer
Ramm Rectifier Co
Raytheon/Comm Apparatus
Schaevitz Engineering
Servomechanism Inc
Standard Electrical Prods
Standard Winding
Sterling Transformer
Superior Electric Co
Sylvania Lighting Prods
Sylvania Special Prods
System Analyzer
Tech Apparatus Bldrs
Telectro Industries
Thordarson Meksner
Trenton Transformer
United Transformer Corp
Universal Toroid Coil
Varo Mfg Co
Virginia Electronics
Westinghouse Electric

TRANSFORMERS, Variable, Voltage Testing

Airpax Electronics
Basler Electric
Calif Magnetic Control
Del Electronics
Dietz Design
DJECO
Durakool Inc
Electron Arc
GE Apparatus Sales Div
Gates Electronic
Goslin Electric
Green Rectifier
Industrial Transformer
Megadyne Elx
North Atlantic Indus
Ohmite Mfg Co
Ramm Rectifier Co
Raytheon/Comm Apparatus
Strong Electric Corp
Superior Electric Co
Tech Apparatus Bldrs
Telectro Industries
Trenton Transformer
United Transformer
Universal Toroid Coil
Varo Mfg Co

TRANSISTORS

Advanced Research
Amperex Electronic
Bourns Inc
Clevite Transistor
Delco Radio
DJECO
Engelhard Industries
Electronic Transistors
Fairchild Semiconductor
G E Semiconductor
General Transistor
Hoffman Electronics
Hughes Products
Industro Transistor
Intl Electronics
Kearfott Div
M-H Semiconductor Prods
Motorola C and E
Motorola Semicon Prods
National Semiconductor
Pacific Semiconductors
Philco/Lansdale
RCA Defense Electronic
Raytheon/Semiconductor
Rheem Semiconductor
Silicon Transistor
Solid State Products
Sperry Semiconductor
Sprague Electric Co
Sterling Transformer
Sylvania Semiconductor
Tech Apparatus Bldrs
Texas Instruments Inc
Transitron Electronic
U S Transistor Corp
Wakefield Engineering
Western Transistor
WE-Semiconductor

TUBES, Cathode Ray, including Display, Camera, Storage, etc.

Abtronics Inc
Baird Atomic
British Industries
Canadian Marconi
Corning Glass
Diamond Power Specialty
DuMont Labs Allen B
Electronic Tube
Ferranti Electric
General Dynamics/Elx
GE Power Tube Dept
General Electrodynamics
Hughes Vacuum Tube
Intelex Systems Inc
Intercontinental Elx
Intl Electronics
Machlett Labs
Philco Corp
Philco/Lansdale
RCA Defense Electronic
Raytheon/Indust Comp
Sylvania Electronic Tube
Thomas Electronics
Waterman Products
WE-Electronic Tube

TUBES, Discharge, Gas and Vapor, including Argon, Mercury, Neon, Sodium, etc.

Abtronics Inc
Amglo Corp
Amperex Electronic
British Industries
Canadian Marconi
Central Electronic Mfgrs
Corning Glass
Electronic Inds Inc
Electrons Inc
Ferranti Electric
GE Power Tube Dept
Gordos Corp
Hanovia Lamp Div
Hughes Products
Intelex Systems Inc
Intl Electronics
Kemlite Labs
Microwave Associates
RCA Defense Electronic
Radiation Research Corp
Raytheon/Indust Comp
Sylvania Lighting Prods
Tucor Inc
Ultra Violet Prods
Vapor Heating Corp
Victoreen Instr Co
WE-Electronic Tube
WE-Lamp Div

TUBES, Electrometer

Argonaut Asso
British Industries
Canadian Marconi
Ferranti Electric
GE Power Tube Dept
Intl Electronics
Owens-Illinois Glass Co
Raytheon/Indust Comp
Victoreen Instr Co

TUBES, Electron Vacuum

Amperex Electronic
British Industries
Burroughs Elx Tube
Canadian Marconi
Central Electronic Mfgrs
Cetron Electronic
Diamond Power Specialty
Eitel-McCullough
Electronic Inds Inc
Ferranti Electric
GE Power Tube Dept
Hughes Products
Intelex Systems Inc
Intl Electronics
Lewis & Kaufman Ltd
Machlett Labs
Penta Labs
Philco/Lansdale
RCA Defense Electronic
Raytheon/Indust Comp
Research Council Inc
Tucor Inc
Vacuum Tube Prods
Victoreen Instr Co
Watkins-Johnson Co
WE-Electronic Tube
WE-Lamp Div

TUBES, Geiger-Mueller (see also Counters, G-M)

Amperex Electronic
Baird-Atomic Inc
British Industries
Canadian Marconi
Central Electronic Mfrs
Forro Scientific
Instruments Inc
Intl Electronics
Isotopes Specialties
Landsverk Electrometer
Nuclear-Chicago
Nuclear Corp of Amer
Nuclear Dev Lab
Nucleonic Corp of Amer
Packard Instrument Co
Raytheon/Indust Comp
Research Council Inc
Tracerlab Inc
U S Nuclear
Victoreen Instr Co
Western Radiation Lab
Wood Counter Lab

TUBES, Glow (see also Tubes, Discharge)

Abtronics Inc
Amglo Corp
Amperex Electronic
Baird-Atomic Inc
British Industries
Burroughs Corp
Burroughs Elx Tube
Bush Associates G F
Canadian Marconi
Electronic Inds Inc
Ferranti Electric
G E Specialty Control
Intl Electronics
Kemlite Labs
Raytheon/Indust Comp
Sylvania Lighting Prods
Tucor Inc
Victoreen Instr Co
WE-Electronic Tube

TUBES, Ignitron

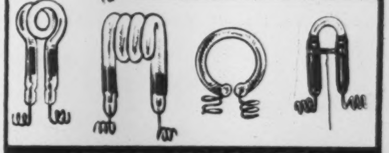
Amperex Electronic
GE Power Tube Dept
G E Specialty Control
Intl Electronics
National Electronics
Natl Electronics (Ill)
WE-Electronic Tube
Westinghouse Electric

TUBES, Klystron

Amperex Electronic
Applied Radiation Corp
British Industries
Canadian Marconi
Corning Glass
Eitel-McCullough
Ferranti Electric
GE Power Tube Dept
Hughes Products
Intl Electronics
Philco Corp
Polarad Electronics Corp
Raytheon/Microwave
Sperry Electronic Tube
Sperry Gyroscope
Sylvania Electronic Tube
Tucor Inc
Varian Associates
Watkins-Johnson Co
WE-Electronic Tube

TUBES, Magnetron

Amperex Electronic
British Indust Ies
Canadian Marconi
Corning Glass
Ferranti Electric
GE Power Tube Dept
Intl Electronics



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Microwave Associates
RCA Defense Electronic
Rayethon/Microwave
Sylvania Electronic Tube
Watkins-Johnson Co
WE-Electronic Tube

TUBES, Photosensitive including Phototubes and Photocells

Abtronics Inc
Amperex Electronic
CBS Laboratories
Cetron Electronic
Diamond Power Specialty
DuMont Labs Allen B
Eastman Kodak
Edison Industries T A
Electro-Mechanical Res
Energy Kontrols
G E Apparatus Sales Div
GE Power Tube Dept
G E Specialty Control
General Electrodynamics
Greiner Co Emil
Intelex Systems Inc
Intl Electronics
Machlett Labs
Photobell Co
RCA Defense Electronic
WE-Electronic Tube
Western Radiation Lab

TUBES, Thyratron

Amperex Electronic
British Industries
Canadian Marconi
Cetron Electronic
Edgerton Germeshausen
Electronic Inds Inc
Electrons Inc
GE Power Tube Dept
G E Specialty Control
Hughes Products
Intl Electronics
National Electronics
Natl Electronics (Ill)
Penta Labs
Raytheon/Indus Comp
Sylvania Electronic Tube
Tucor Inc
WE-Electronic Tube

TUBES, Traveling Wave (see also Microwave Equipment—Cat. 3)

Amperex Electronic
British Industries
Canadian Marconi
Corning Glass
Eitel-McCullough
Electronic Tube
Ferranti Electric
GE Power Tube Dept
Hughes Microwave
Hughes Products
Intl Electronics
Lewis & Kaufman Ltd
Microwave Associates
Porter Inc Geo K
RCA Defense Electronic
Raytheon/Microwave
Sperry Electronic Tube
Sperry Gyroscope
Sylvania Electronic Tube
TRG Inc
Tucor Inc
Varian Associates
Voi-Shan Electronics
Watkins-Johnson Co
WE-Electronic Tube

TUBES, X-ray

Aeroquip Corp
Amperex Electronic
British Industries
Corning Glass
Dunlee Corp
Ferranti Electric
GE XRay Dept
Kemlite Labs
Machlett Labs
RCA Industrial Elx
WE-Electronic Tube
Westinghouse Electric

VARISTORS

Automatic Electric
Carbone Corp
Edal Industries
GE Magnetic Materials
Gruenberg Electric
Nucleonic Prods
Precision Thermometer
Schauer Mfg Corp
Sylvania Semiconductor
Trio Laboratories
Union Switch & Signal
U S Semiconductor Prods
Victory Engrg Corp

VIALS, Level

Askania-Werke
Bache & Co Semon
Berger & Sons C L
Geier & Bluhm
GE Magnetic Materials
Gurley W & L E
Kern Instrs
Sprengnether Instr
Warren-Knight Co

WIRE STRIPPERS

Fluid Power Access
Ideal Industries
Martindale Electric Co

YOKES, Deflection, for Cathode-Ray Tubes

General Instrument Corp
Raytheon/Microwave
Sylvania Electronic Tube
Syntronic Instruments

Chromel-R—A modified 80-20 nickel-chromium alloy for use in potentiometers and precision wire wound resistors. Possesses resistivity of 800 ohms/cmf at 20° C., temperature coefficient controlled within 0 ± 10 ppm/°C., exceptional linearity and stability from —65° to +150° C.

Chromel-P/Alumel—The world's standard base metal thermocouple combination for measuring operating temperatures in laboratory and heat treat furnaces—jet engines, nuclear reactors. Accuracy is guaranteed to close specified limits over the entire range from —300° to +2300° F.

Chromel-A—The original 80-20 nickel-chromium resistance alloy that first made electric heating practical. Widely used in major appliances, industrial furnaces and many other devices requiring heating elements capable of operating up to 2150° F. under adverse conditions.

Alloy 815-R—A lower density, higher resistivity iron-chromium-aluminum resistor material that gives you 14% more ohms per pound. Noted for strength, ductility, resistance to wear and corrosion. Resistivity: 815 ohms/cmf at 20° C. Temp. Coeff.: 0 ± 10 ppm/° C. from — 65° to +150° C.

Chromel-P/Copel-XM—A basic thermo-electric alloy combination used primarily as thermopiles to actuate and control operating temperatures of domestic furnaces, hot water heaters, stoves, ranges and other types of heating equipment. Noted for accuracy and reliability in service.

Chromel-AA—A new modified 80-20 type nickel-chromium resistance alloy developed especially for use in controlled atmosphere furnaces. It is highly resistant to corrosion, carburization, oxidation and "green rot" over the entire range of operating temperatures up to 2150° F.

Copel—A 55-45 copper-nickel alloy for use in edge-wound resistors, rheostats, motor starters and many other types of devices where operating Temperatures do not exceed 1000° F. Has resistivity of 294 ohms/cmf at 68° F., low temperature coefficient and exceptional mechanical stability.

Hoskins Cunife—A new improved copper-nickel-iron ductile permanent magnet alloy. Possesses high coercive force and energy product values, greater uniformity. Readily stamped, machined or otherwise formed by conventional methods for economical production of close tolerance parts.

Chromel-C—A 60-16 nickel-chromium-iron alloy used primarily as heating elements in small domestic appliances and other devices that require high resistance in limited space for operating temperatures up to 1700° F. Also used as cold resistor alloy in current-temperature controls.

Chromel-D—A time proven low nickel heating element alloy developed for use in controlled atmosphere furnaces required to operate in the critical temperature range between 1500° and 1800° F. It is highly resistant to corrosion, possesses exceptional mechanical stability.

Alloys 815, 835 and 875—Three superior iron-chromium-aluminum resistance alloys for use at operating temperatures up to 2150°, 2250° and 2350° F. respectively. Suitable for certain types of appliances, industrial furnaces and kilns where proper supports can be provided.

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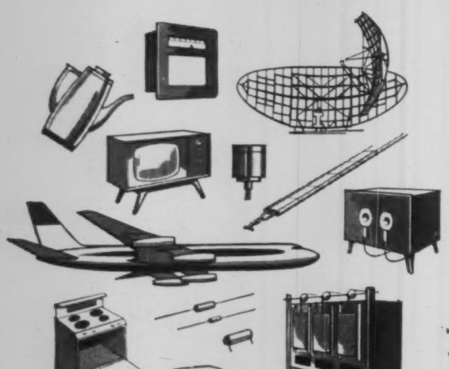

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Machines and Materials

1962 BUYERS' GUIDE

9

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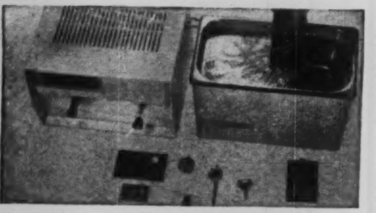
INSTALLATION, AND MAINTENANCE



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520	13 gal.	20"Lx16"Wx10"D	$ 999.95	$1325-1750
1040	30 gal.	24"Lx18"Wx16"D	$1999.95	$2275-2500
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IVORY						
DESERT SAND						
WHEAT YEL.						
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California: 4959 Weeks Ave., San Diego • Br 6-5551

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Carborundum Co
Cratex Mfg Co
Ideal Industries
Industrial Filter & Pump
Martindale Electric Co
United Mineral & Chem

AGATE and AGATE SPECIALTIES, including Bearings, Styli
Keller Hugo P
Swiss Amer Jewel

ALLOYS, Glass Sealing
Accurate Specialties
Allegheny Ludlum
American Smelting
Anchor Metals Co
Bishop & Co
Bram Metallurgical
Carborundum Co
Carpenter Steel
Cerro De Pasco
Consol Reactive Metals
Crucible Steel
Driver Co Wilbur B
Driver-Harris Co
Electronic Parts
Fansteel Metallurgical
Metals & Controls Div
Paul F H & Stein Bros
Richfield Coined Prod
Semi-Alloys Inc
Sylvania Parts Div
Telemetering Corp
Texas Instruments Inc
Torrington Co
Westinghouse Electric

ALLOYS, High Permeability including Hipernik, Mumetals, Permalloy, etc.
Allegheny Ludlum
Alloys Unlimited
American Smelting
Arnold Engineering
Bram Metallurgical Chem
Carpenter Steel
Crucible Steel
Hamilton Watch
Hoskins Mfg Co
Jan Hardware Mfg
Semi-Alloys Inc
Wall Colmonoy
Westinghouse Electric

ALLOYS, Temperature Compensator
Accurate Specialties
Alloys Unlimited
American Smelting
Carpenter Steel
Cerro De Pasco
Consol Reactive Metals
Crucible Steel
Driver Co Wilbur B
Driver-Harris Co
General Communication
Hoskins Mfg Co
Texas Instruments Inc

ALUMINUM FRAMES for Small Moving Coils
Electro-Autosizing
H and H Machine
Precision Tube Co

BALSAM
Bushnell & Co D P
Lynn Robert M

BOLTS, Special Stainless Steel
Albany Products Co
Allmetal Screw Products
Amatom Electronic
Continental Screw
Dittmore Freimuth
Flight Components
Klincher Locknut
Long-Lok Eastern Corp
Michigan Precision
Nylock Corp
Standard Pressed Steel
Standard Screw Co
Torrington Co

CABINETS, Instruments
Abalon Precision
Aircraft Armaments
Alpitec Inc
Amco Engrg Co
Anetsberger Brothers
Argonaut Asso
Artisan Inds Inc
Blickman Inc S
Brooks & Perkins
Bud Radio
Calif Chassis
Christman Inds
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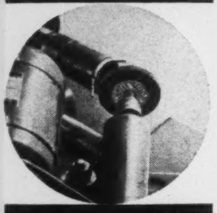
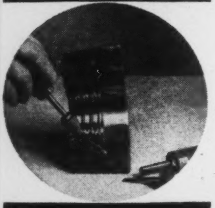


Breaking edges, shaping to slight radius, touching-up and scores of other operations.



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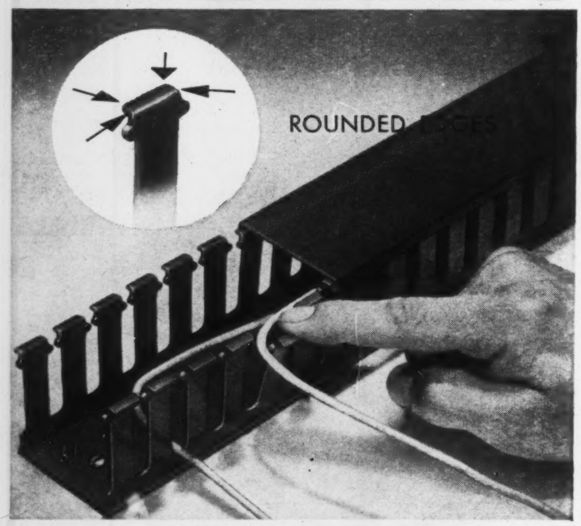

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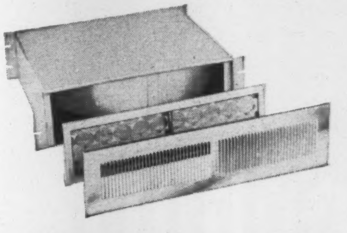

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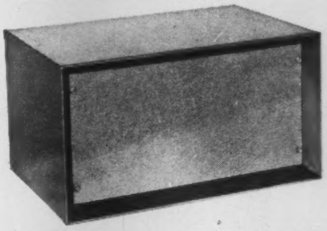

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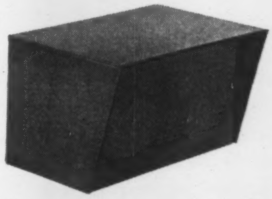

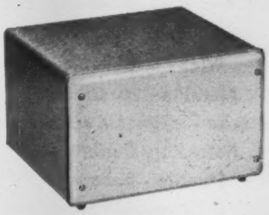

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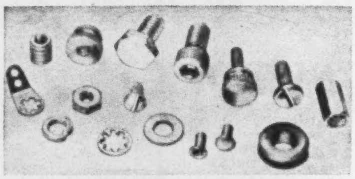

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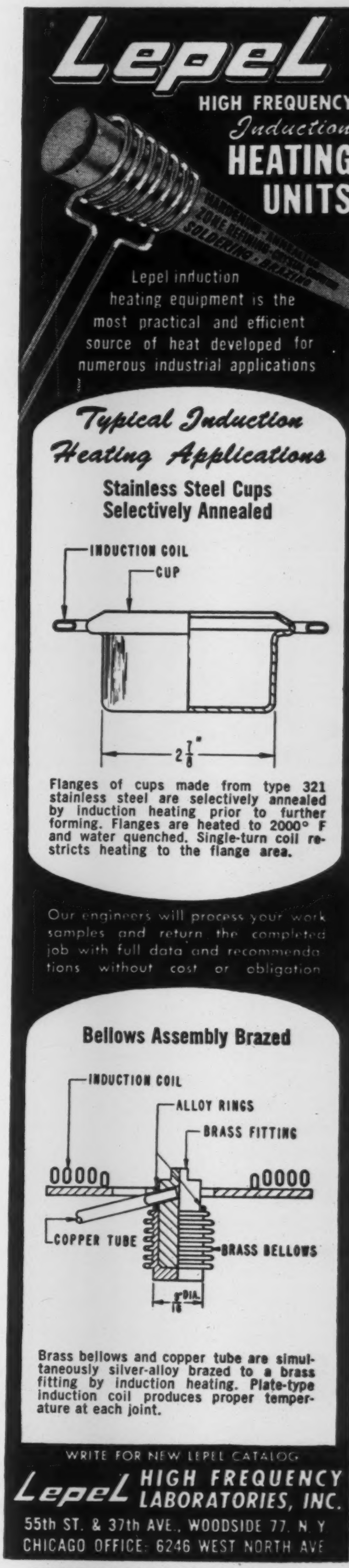
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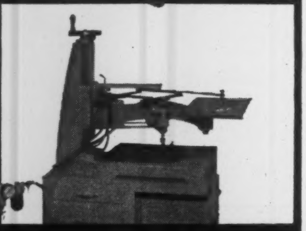

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MODEL D2-201
PNEUMATIC ATTACHMENT

for use with Model D2 Pantograph Engraver to rapidly drill holes in printed circuits by tracing templates. Drills as many as 100 holes per minute. Equipped with foot switch; spindle air cylinder; regulating valve and pressure gauge; filter and oiler. It's ready to use as soon as it's attached to an air compressor.

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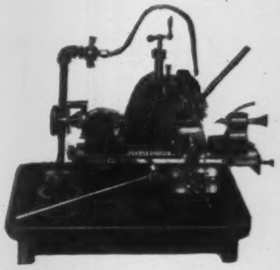
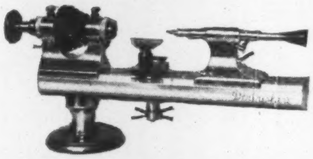
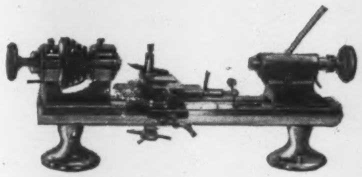


MICROMILL
2 Table Surfaces: 7⅞" x 2⅜" — 12" x 2⅜" — Takes Magnus Collets.



WEBSTER WHITCOMB 12" BED
Center Height—5 CM, Collet Capacity—.1969"



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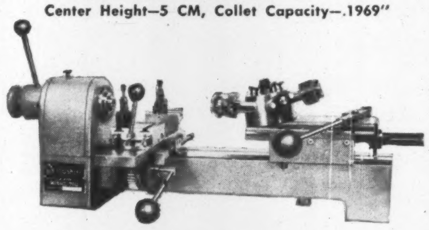

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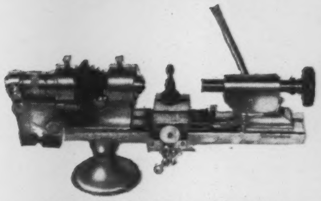

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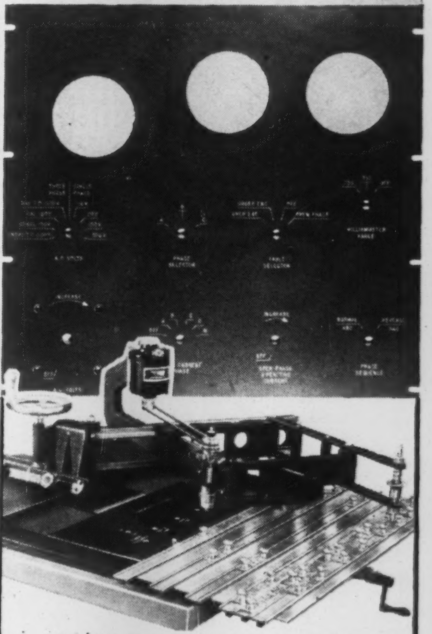

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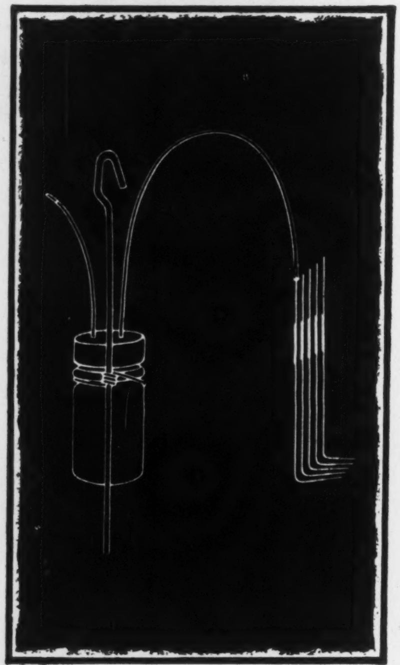

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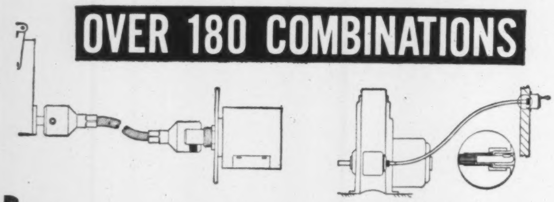

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Lee Spring Co
Metals & Controls Inc
Sphinx-American Co
Waltham Precision Instr
Worden Laboratories

SPRINGS, Glass
Corning Glass
Elgin Natl Watch
Worden Laboratories

SPRINGS, Torsion
Chatillon John
Crucible Steel
Elgin Natl Watch
Gordon Enterprises
Hunter Spring Co
Lee Spring Co
Waltham Precision Instr

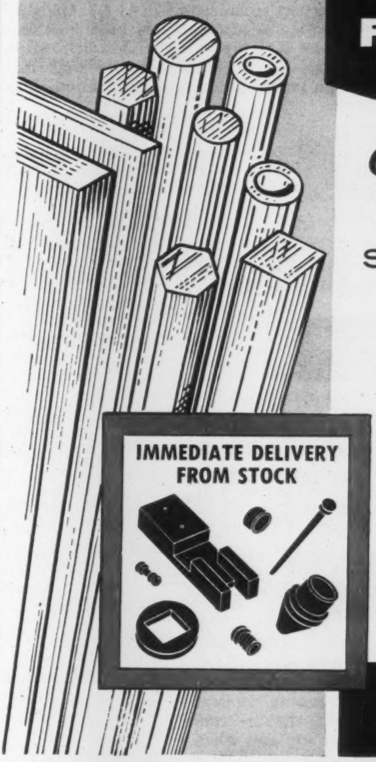
SPRINGS, Watch
Elgin Natl Watch
Hamilton Watch Co
Newall Mfg Co
Sphinx-American Co
Swiss Amer Jewel
Waltham Precision Instr
Worden Laboratories

STYLI, Sapphire, Diamond, etc.
Elgin Natl Watch
Engis Equipment
Hamilton Watch Co
Sphinx-American Co
Swiss Amer Jewel
Worley Jewel Co

SUSPENSION RIBBON
Consol Reactive Metals
Secon Metals Corp

TAPES, PRESSURE SENSITIVE, including Symbols
Behr-Manning Co
By-Buk Co
Chart-Pack Inc
Minnesota Mining Mfg
Permacel
Stanpat Company
Topflight Corp
Westline Products

Pioneers in



PLASTIC PRODUCTS
SINCE 1928

Clear PLEXIGLAS
LUCITE • NYLON
SHEETS • RODS • TUBES

Fabricators of
BAKELITE • LUCITE
PLEXIGLAS • POLYSTYRENE
REXOLITE • POLYETHYLENE
TEFLON • KEL-F
HARD RUBBER • FIBRE
CATALIN • MYCALEX
TENSILITE • ACETATE
NYLON • CASEIN

Colonial Kolonite Co.
2232 W. ARMITAGE AVE.
CHICAGO 47, ILLINOIS

MILWAUKEE OFFICE • WAREHOUSE
12300 ADLER LANE
MILWAUKEE, WISCONSIN

CIRCLE 355 ON READER-SERVICE CARD

THERMOSTATIC ELEMENTS and METALS, including Bimetallic Materials, Springs, Strips, Fabricated Parts, etc.
Accurate Specialties
Bishop & Co J
Carpenter Steel
Chace Co Wm
National Tel-Tronics
Robertshaw-Fulton Contl
Texas Instruments Inc

TIN RIBBON, Block
Accurate Specialties
Alpha Metals Inc
American Smelting
Anchor Metals Co
Secon Metals Corp
Semi-Alloys Inc

TOOLS, Precision
Alina Corp
Automark Marking Equip
Black & Decker Mfg Co
Brown & Sharpe Mfg Co
Dixon Inc Wm
Dumore Co
Elgin Natl Watch
Engis Equipment
Fineisen Co A R
Garrison Machine Works
General Cement
Grobet File Co of Amer
H J J Company
Hamilton Watch Co
Handicraft Tools
Jadow Inc
Jensen Tool Co
Kendrick & Davis
Lavallee & Ide
Lufkin Rule Co
Lynn Robert M
Millers Falls Co
Morris Co J I
Newall Mfg Co
Overload Control
PIC Design Corp
Rockwell Mfg Co
Size Control Co
Taft-Pierce Mfg Co
Torrington Co
Torque Controls
Universal Mfg Co
Vaco Products Co
Vinco Corp
Waltham Precision Instr
X-Acto Inc

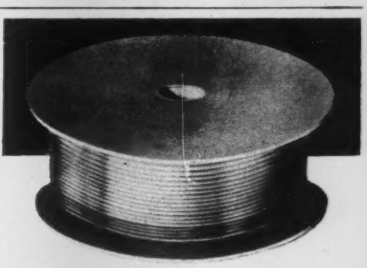
TUBING, Bourdon
American Brass Co
Bishop & Co J
Colonial Kolonite
Hagan Chem & Controls
Handy & Harman
Precision Tube Co
Seegers Mfg
Superior Tube
U S Gauge Div

TUBING, Capillary
American Brass Co
Anaconda Metal Hole
Avins Industrial Prods
Bishop & Co J
Cobon Plastics Corp
Corning Glass
Fischer & Porter Co
Flexonics Corp
Greiner Glassblowing
Hagan Chem & Controls
Handy & Harman
High Pressure Equip
Precision Tube Co
Superior Tube
Uniform Tubes

TUBING, Ceramic
Accurate Specialties
American Lava Corp
Centralab Div
Coors Porcelain
Corning Glass
Du-Co Ceramics
Duramic Products Inc
General Ceramics
Haveg Industries
Illumitronic Eng
Ind Pyrometer & Supply
Laboratory Equip Corp
McDanel Refractory
Richards Co Arklay S
Saxonburg Ceramics
Superior Steatite & Cera
Thor Ceramics Inc
Western Gold & Platinum
Zirconium Corp

TUBING, Fibre
Alpha Wire Corp
Amatom Electronic
Auburn Mfg Co
Continental-Diamond Fibre
General Cement
Haveg Industries
Illumitronic Engrg
Markel & Sons
Natl Vulcanized Fibre
Paramount Paper Tube
Spaulding Fibre Co
Varflex Corp

TUBING, Flexible
Actuator Prods Corp
Aeroquip Corp
Alpha Wire Corp
Aluminum Co of Amer
Anaconda Metal Hose
Auburn Mfg Co
Bel Art Products
Birnbach Radio Co
Blaco Mfg Co
Brand-Rex Div
Cobon Plastics Corp
Colonial Kolonite
Continental-Diamond Fibre
Crescent Insulated Wire



VACUUM ANNEALED
Copper
Capillary
Tubing
Level-Wound Coils

High uniformity, controlled grain size tubing completely clean inside and very bright outside. Coils up to 1,000 feet or straight lengths. Grain size to ASTM or your specifications. Competitively priced. Deliveries 2 to 6 weeks depending on details.

AVINS INDUSTRIAL PRODUCTS
CORPORATION
50 BROADWAY, NEW YORK 4, N. Y.
Area Code 212, WH 4-5390

CIRCLE 356 ON READER-SERVICE CARD

CRESCENT ARMORED MULTITUBE*

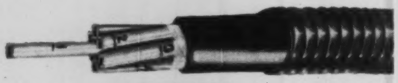
—an armored group of 2 to 37 long length tubes of the user's choice, SPIRALLY CABLED together to permit maximum bending without distortion of the tubes. Mechanical and corrosion protection is accomplished by a flexible, interlocked, metallic armor or corrosion-resistant polyvinyl chloride sheath, or combination of both. There is a type of MULTITUBE to meet your requirements and give you the best protected instrument and control tubing installation at the lowest installed cost. We are able to provide your type promptly from large factory stocks of tubing. Each tube is numbered every two inches for easy identification throughout. This product is licensed under U.S. Patent 2,578,280.

TYPE CA
(General Purpose)

employs SPIRALLY CABLED copper tubes covered with a vinyl insulating tape and flexible, interlocked, galvanized steel armor.

TYPE CAT

has a vinyl insulating tape over the SPIRALLY CABLED copper tubes with a flexible, interlocked, galvanized steel armor and polyvinyl chloride (PVC) thermoplastic sheath. This construction provides mechanical and corrosion protection for the tubing as well as corrosion protection for the armor. For outdoor, wet and corrosive locations.



TYPE CTA

consists of SPIRALLY CABLED copper tubes with a polyvinyl chloride (PVC) thermoplastic sheath and flexible, interlocked, galvanized steel armor. The sheath protects the tubing against corrosion and the armor protects both tubing and sheath from mechanical injury. Recommended for general outdoor use and when a high degree of mechanical protection is desired for exposed locations or during installation such as direct burial in concrete or blacktop and pulling into conduit.

TYPE CTAT

provides maximum mechanical and corrosion protection. It has a polyvinyl chloride (PVC) thermoplastic sheath over the SPIRALLY CABLED copper tubes, with a flexible, interlocked, galvanized steel armor and polyvinyl chloride (PVC) thermoplastic sheath overall. For particularly corrosive locations as in refineries and petrochemical plants.

TYPE CT

The SPIRALLY CABLED copper tubes are protected by a mylar tape and polyvinyl chloride (PVC) thermoplastic sheath that is tough, resistant to water, acids, alkalies, oils and most chemicals and will not support combustion. Recommended for use in damp or corrosive locations, in troughs or attached to sheltered building surfaces where it will not be subjected to mechanical injury.

TYPE CT-HW

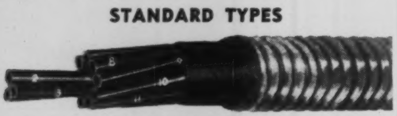
similar to standard Type CT above except protected by an extra heavy wall (HW) PVC sheath for additional mechanical protection.

Plastic Coated Single Tubes, copper or aluminum should be used to give corrosion protection to all single lines up to the final tube fitting, where trouble from corrosion may occur.

CRESCENT POLYETHYLENE OR NYLON MULTITUBE

consists of 2 to 37 precision Polyethylene tubes *spirally cabled* together for greatest flexibility. The tubing assembly is protected against mechanical injury by an interlocked, galvanized steel armor, Polyvinyl Chloride sheath, or other sheaths, as below. Can also be furnished with Nylon Tubes.

STANDARD TYPES



TYPE PA

TYPE PA—Interlocked metallic armor provides complete mechanical protection.

TYPE PAT

TYPE PAT—Polyvinyl chloride sheath over the armor adds corrosion protection for the armor. Can be buried in the earth.

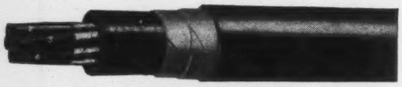
TYPE PT

TYPE PT—PVC sheath gives limited mechanical protection. For use in troughs, trays or conduit.

SPECIAL SERVICE TYPES

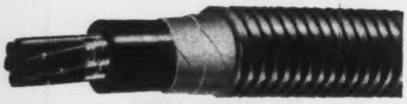
TYPE XPT-U

TYPE XPT-U—Extra heavy PVC sheath over high modulus TYPE XP tubing permits direct burial, or use above ground where subject to moderate abuse.



TYPE XPT-F

TYPE XPT-F—Same as XPT-U with heavy asbestos tapes and outer PVC sheath. Provides time delay in event of flash fire.



TYPE XPT-FA

TYPE XPT-FA—Same as XPT-U with heavy asbestos tapes and interlocked metallic armor. Provides complete mechanical protection, as well as time delay in event of flash fire.

* Reg. U. S. Pat. Office

WRITE FOR BULLETIN NO. 960-J

CRESCENT INSULATED WIRE & CABLE CO. INC.

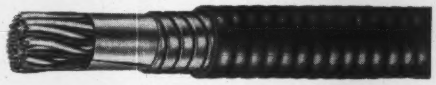
TRENTON, NEW JERSEY

CIRCLE 357 ON READER-SERVICE CARD

Dekoron® Products Division
SAMUEL MOORE & CO. • MANTUA, OHIO
Telephone Crestwood 4-2276

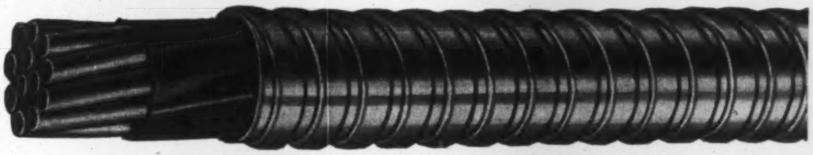
DEKORON MULTICOUPLE EXTENSION WIRE

Dekoron multiple pair harness of thermocouple extension wire is available in three constructions, each in either Iron-Constantan, Copper-Constantan or Chromel-Alumel. Each is guaranteed to meet or exceed ISA specs for standard grade extension wire.



DEKORON ARMORED INSTRUMENT HARNESS

Four different tubing materials combined with four distinct types of armoring give 16 different types of Dekoron Armored Instrument Harness. Special Moore-Loc (modified square lock) galvanized steel armor has almost twice the pull-apart resistance of ordinary armor. Also has cord packing for extra resistance to moisture and fume penetration.



CONDENSED SPECIFICATIONS

COPPER TUBING

To ASTM B68 Type DHP specifications and pressure tested to ASTM B75 specifications.

¼ OD x .030" in 50, 100, 500 and 1000' lengths
⅜ OD x .032" in 50, 100 and 500' lengths
½ OD x .035" in 50 and 100' lengths

ALUMINUM TUBING

Drawn, seamless, annealed 5050-0 Utilitube. Sizes and lengths:

¼ OD x .032" in 50, 100 and 500' lengths
⅜ OD x .035" in 50, 100 and 500' lengths

POLYETHYLENE TUBING

High molecular weight, virgin polyethylene. Sizes and lengths:

¼ OD x .040" in continuous lengths in increments of 100' to 1000'
⅜ OD x .062" in continuous lengths in increments of 100' to 1000'
½ OD x .062" in continuous lengths in increments of 100' to 500'

PLASTIC SPECIFICATIONS

Polyethylene

Used as the sheath on single-line tubing, Metl-Cor and for black "P" Tubing, this polyethylene meets following specifications: ASA, REA, IPCEA requirements on weather resistance, chemical resistance, heat stability, and surpasses requirements under ASTM 1248-52T. Polyethylene, other than black, contains no ultraviolet inhibitor and should not be used outdoors. Black polyethylene is unaffected by ozone. This polyethylene remains flexible below —100°F.

Polyvinyl Chloride

Used as the sheath on Poly-Cor, and single-line tubing, this polyvinyl chloride meets UL, ASTM, IPCEA, AN-C-168, AN-J-C-48A, J-C-129, and MIL-C-915 specifications.

Factory stocks of products described in this bulletin are made of materials that comply with specifications outlined above. Other materials and sizes, tube combinations, etc., are available on special order. Manufacturer serves right to alter specifications without notice or incurring liability for products already shipped.

ACCESSORIES

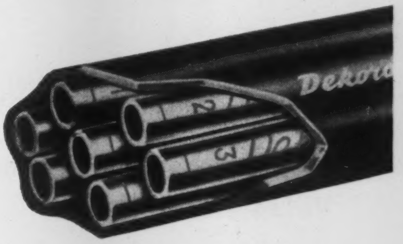
To facilitate installation of Dekoron products, we supply a line of tubing accessories which includes the following; junction and union boxes. E-Z fittings for plastic tubing, "P" Tubing clips, reel stands, harness straighteners, corner troughs and other aids for cutting installation costs.

INSTALLATION DATA

Complete data regarding bending radii, centers of support, hangers and clamp sizes and types, and various proven methods of installation are available on request.

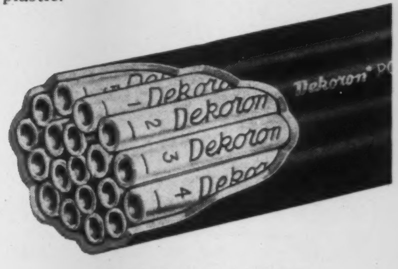
RESEARCH AND DEVELOPMENT SERVICE

Our Research and Development Department is constantly striving to design and develop new and improved products to enable instrument users to cut installed costs to the minimum and to achieve longer service-free life. The facilities of this department are available to you now to develop products and techniques to meet your specific requirements. Since our development program is continuous, we may already have solved your problem. Always check with the Dekoron Products Division first for the answers to your instrument tubing needs.



DEKORON METL-COR

Instrument line harness with tube combinations of 2 to 19 individual numbered copper or aluminum tubes covered with chemically resistant sheath of polyethylene plastic.



DEKORON POLY-COR

Bundle of from 2 to 37 individual numbered black polyethylene tubes covered with vinyl plastic. Installs as easily as electric wiring.

DEKORON TUBING

The original plastic-coated metal instrument tubing. Available with copper, aluminum or steel core tube. Resists chemical attack, outlasts expensive alloy tubing.

Dekoron P tubing
SAMUEL MOORE & CO.
MANTUA, OHIO

DEKORON "P" TUBING

Highest quality single-line polyethylene instrument tubing. Easy to install; requires no special tools.

Dekoron is more than a name for chemically resistant instrument tubing. The Dekoron trademark now identifies a complete line of tubing products—instrument line harness, tubing, fittings, and accessories for tubing up a pneumatic system. Dekoron products cost less to buy . . . less to install . . . last longer. *So tube up with Dekoron products and watch your costs come tumbling down.*

CIRCLE 358 ON READER-SERVICE CARD

Pyramid "INSTRUPACK" Tubing Bundles

Polyethylene Tubes enclosed in Virgin Plastic Sheath

Tough plastic outer sheath with excellent chemical atmospheric resistance. Inside tubes are polyethylene. Lengths to your requirements.

Send specifications for quotation.

STOCK POLYETHYLENE TUBING
¼" O.D. x .040" wall and ⅜" O.D. x .062" wall, in standard colors.

PLASTIC COATED METAL TUBING
Standards and specials to order.

Write for Bulletin PPI-59.

"INSTRUPACK" SPECIFICATIONS

¼" or ⅜" Polyethylene Tubing.

Vinyl or Polyethylene Sheath .045" or .062" thickness or as required.

Color Coded or Black Numbered Tubes.

Telephone Leads.

Mylar Wrap between Tubes and Sheath.

PPI

PYRAMID PLASTICS, INC.
562 W. Polk St., Chicago 7, Ill.

CIRCLE 359 ON READER-SERVICE CARD

Dekoron Prods Div
Flexaust Co
Flexonics Corp
Garlock Electronic Prod
Illumitronic Eng
Imperial Brass Mfg
Loral Electronics
M and Q Plastic Products
Markel & Sons
Okonite Co
Polymer Corp
Pyramid Plastics Inc
Sequoia Wire & Cable Co
Stewart Corp, F W
Surprenant Mfg Co
Universal Metal Hose
Varflex Corp
Weatherhead Co
Zippertubing Co

TUBING, Flexible, Multiple Tube Bundles

Airtron Div
Anaconda Metal Hose
Bailey Meter Co
Birnbach Radio Co
Commercial Plastics
Corning Glass
Crescent Insulated Wire
Dekoron Prod Div
Illumitronic Engrg
Imperial-Eastman Corp
M and Q Plastic Products
Nylon Moldin
Okonite Co
Polymer Corp
Pyramid Plastics
Stewart Corp F W
Surprenant Mfg Co
Zippertubing Co

TUBING, Fused Quartz

Applied Instruments Inc
Avins Industrial Prods
Bram Metallurgical Chem
Braun-Knecht-Heimann
Continental-Diamond Fibre
Corning Glass
Engelhard Industries
Greiner Glassblowing
Richards Co Arklay S
Thermal American
Ultra-Violet Prods
WE-Lamp Div

TUBING, Glass Fibre, Insulation

Alpha Wire Corp
Amer Super Temp Wires
Auburn Mfg Co
Bentley Harr's Mfg
Birnbach RADIO Co
Brand-Rex Div
Continental-Diamond Fibre
Formica Corp
G E Laminated Prods
Haveg Industries
Markel & Sons
Minnesota Mining Mfg
Spaulding Fibre Co
Synthane Corp
Taylor Fibre Co
Varflex Corp
Wells Electronics
Zippertubing Co

TUBING, Laminated Phenolic

Auburn Mfg Co
Continental-Diamond Fibre
Colonial Kolonite
Engelhard Industries
G E Laminated Prods
Haveg Industries
Formica Corp
Illumitronic Engrg
Laminated Sheet Pro
Mica Insulator Div
Natl Vulcanized Fibre
Precision Paper Tube
Richardson Co
Spaulding Fibre Co
Synthane Corp
Taylor Fibre Co
Texas Instruments Inc
Wilmington Fibre

TUBING, Low Coefficient of Expansion

Applied Instruments Inc
Beckler Bros Carbon
Bishop & Co J
Carpenter Steel
Continental-Diamond Fibre
Corning Glass
Handy & Harman
Metals & Controls Inc
Ohio Carbon Co
Porter Inc Geo K
Superior Tube Co
Uniform Tubes

TUBING, Mica

Auburn Mfg Co
Colonial Kolonite
Continental-Diamond
Insulation Mfg Co
Haveg Industries
Mica Insulator Div
Precision Paper Tube

TUBING, Miscellaneous, including Illium, Invar, Kovar, special alloy, tantalum

Accurate Specialties
Aeroquip Corp
Allegheny Ludlum
Avins Industrial Prods
Bishop & Co J
Bram Metallurgical Chem
Carborundum Co
Carpenter Steel
Crucible Steel
Electronic Parts
Elgin Natl Watch
Fansteel Metallurgical
Handy & Harman
Metals & Controls Inc
Paul F H & Stein Bros
Precision Tube Co
Semi-Alloys Inc
Superior Tube Co
Texas Instruments Inc
Uniform Tubes

TUBING, Nickel, Monel, Inconel

American Brass Co
Bishop & Co J
Bram Metallurgical Chem
Carpenter Steel
Crucible Steel
Electronic Parts
Handy & Harman
High Pressure Equip
Precision Tube Co
Simpson Optical
Superior Tube Co
Texas Instruments Inc
Uniform Tubes

TUBING, Paper

Auburn Mfg Co
Colonial Kolonite
Continental-Diamond
Crescent Insulated Wire
Paramount Paper Tube
Precision Paper Tube
Viking Copper Tube Co

TUBING, Plastic

Aeroquip Corp
Alpha Plastics Inc
Alpha Wire Corp
Anaconda Metal Hose
Auburn Mfg Co
Bel Art Products
Birnbach Radio Co
Blaco Mfg Co
Borden Chemical
Brand-Rex Div
Cobon Plastics Corp
Colonial Kolonite
Commercial Plastics
Continental-Diamond Fibre
Crescent Insulated Wire
Dekoron Prods Div
DeVilbiss Co
Driver-Harris Co
Foley Electronics
Formica Corp
Garlock Inc
Garlock Electronic Prod
Goodrich Ind Prods B F
Haveg Industrries
Hitemp Wires Inc
Illumitronic Engrg
Imperial-Eastmann Corp
Laminated Sheet Pro
M and Q Plastic Products
Markel & Sons
Minnesota Mining Mfg
Newage Industries
Newman Corp M M
Nylon Moldin
Paul F H & Stein Bros
Panduit Corp
Parker-Hannifin Corp
Polymer Corp
Precision Paper Tube
Pyramid Plastics Inc
Resdel Corp
Richardson Co
Saran Lined Pipe
Spectra-Strip Wire & Cab
Surprenant Mfg Co
Synthane Corp
Taylor Fibre Co
Thor Ceramics Inc
Tube Turns Plastics
Uehling Instrument
Varflex Corp
Western International
Weatherhead Co
Westinghouse Electric
Zippertubing Co

TUBING, Plastic Coated Copper, Aluminum

Alpha Wire Corp
Anaconda Metal Hose
Blaco Mfg Co
Crescent Insulated Wire
Dekoron Prods Div
JFD Electronics
Kensico Tube
M & Q Plastic Products
Okonite Co
Pyramid Plastics

TUBING, Precious Metals, including Platinum

Bishop & Co
Brainin Corp C S
Bram Metallurgical Chem
Engelhard Industries
Handy & Harman
Metals & Controls Div
Semi-Alloys Inc
Texas Instruments Inc
Uniform Tubes

TUBING, Precision Bore, Metal

Accurate Specialties
Avins Industrial Prods
Bram Metallurgical Chem
Crucible Steel
Handy & Harman
Gar Precision Parts
H and H Machine
Kensico Tube
Metals & Controls Inc
Precision Tube Co
Superior Tube Co
Uniform Tubes

TUBING, Rubber

Ace Glass Inc
Aeroquip Corp
Alpha Wire Corp
Auburn Mfg Co
Bentley Harris Mfg
Colonial Kolonite
DeVilbiss Co
Flexaust Co
Garlock Inc
Garlock Electronic Prod
Goodrich Ind Prods B F
Imperial Brass Mfg
Industrial Filter & Pump
RKL Valve & Mfg
Surprenant Mfg Co
Weatherhead Co

TUBING, Varnished or Lacquered

Alpha Wire Corp
Bentley Harris Mfg
Birnbach Radio Co
Brand-Rex Div
Colonial Kolonite
Markel & Sons
Precision Paper Tube
Varflex Corp

TUBING ARMOR, including Plastic

Anaconda Metal Hose
Cobon Plastics Corp
Corning Glass
Crescent Insulated Wire
Flexonics
M & Q Plastic Product
Dekoron Prod Div
Newage Industries
Surprenant Mfg Co

TUBING SUPPORTS, including Cable Supports, Troughs, etc.

Aeroquip Corp
B/W Controllers
Birnbach Radio Co
Commercial Plastics
Grinnell Co
Loral Electronics
M and Q Plastic Products
Nylon Moldin
P-W Industries Inc
Rome Cable Div

TUNGSTEN, Wire and Products

Bishop & Co
Bram Metallurgical Chem
Electronic Parts
Engelhard Industries
Fansteel Metallurgical
Gatti Inc Aurele M
Metals & Controls Inc
Secon Metals Corp
Superior Carbon Prod
Sylvania Chemical
Sylvania Lighting Prods
United Mineral & Chem
Victor Equipment
WE-Lamp Div

TWEEZERS, Instrument (see also Tools, Precision)

Bishop & Co
Dixon Inc, Wm
Dyneers
Engelhard Industries
Federal Tool Engrg
Fineisen Co A R
Ideal Aerosmith
Newall Mfg Co
Stocker & Yale
X-Acto Inc

WASHERS, Metal, Plastic

Albany Products Co
Allmetal Screw Products
Alloys Unlimited
Alpitec Inc
Amatom Electronic
Auburn Mfg Co
Laminated Sheet Pro
M & Q Plastic Product
Morris Co J I
Nylogrip Products
Nylon Molding
PIC Design Corp
Semi-Alloys Inc
Shakeproof Div
Stimpson Co Edwin B
Wilmington Fibre

WATCHMAKER'S SUPPLIES and TOOLS

Alfa American Corp
Dixon Inc Wm
Fineisen Co A R
Hamilton Watch
Jadow Inc
Kendrick & Davis
L and R Mfg Co
Luxo Lamp Corp
Morris Co J I
Newall Mfg Co
Stocker & Yale Inc
Torrington Co
Waltham Precision Instr

WELDING EQUIPMENT

Asea Electric Inc
Behr-Manning Co
Computer Engrg Asso
Empire Products Inc
Engelhard Industries
Ewald Instruments
Falstrom Company
Federal Tool Engrg

RICHCO CABLE CLAMPS

FOR ⅛" TO 2½" CORD OR CABLE

PLASTIC — Nylon or Ethocel • Strong • Lightweight • Resistant to Shock, Chemicals, Corrosion • High Dielectric • Approved for Military Use.

METAL — Plain Aluminum or Neoprene Cushioned for Insulation and Strain Relief.

Nylon
Ethocel
Neoprene
Cushioned
Aluminum

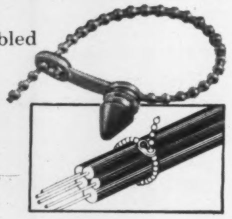
RICHCO WIRE TIES

Standard or Button Types
Strong and Tough
Easily Assembled or Disassembled
Polyethylene or Nylon

Write for Complete Information and Prices!

RICHCO PLASTIC CO.
Dept. I-C, 3722 West North Ave., Chicago 47, Ill.
Metal and Plastic Cable Clamps • Wire Ties

CIRCLE 360 ON READER-SERVICE CARD



Save Time, Money Speed Installations with . . . P-W TUBING & CABLE SUPPORT SYSTEMS

P-W's TYPE "E" (PUNCHED BOTTOM) TRAYS—FOR POWER AND CONTROL CABLES AND INSTRUMENT TUBING—ALTHO LESS EXPENSIVE, ARE STRONGER, VERSATILE AND SUPERIOR. TUBING AND CONTROL CABLE CAN BE DROPPED OUT ANYWHERE.

Engineers, Contractors and Installers look for QUALITY, LONG LIFE, AND LABOR SAVINGS in their supports. That's why more and more users are turning to P-W. Among our outstanding improvements are: CONNECTIONS that are quick and easy to install—PRE-CUT SYSTEMS saving installation time—EXTENSION CONNECTORS eliminating field cutting to complete runs—ADJUSTABLE HORIZONTAL and RISER CONNECTORS to go over, under or around pipes, trusses, columns, etc.—BUILT-IN ADJUSTABLE DROP-OUT SECTIONS eliminate cutting out bottom of tray—STRAIGHT SECTIONS available in lengths up to 16' (33 1/3% less connectors and less installation time over 12' lengths).

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Rosemount Engrg Co
Sittler Corp
Sonobond Corp
Standard Pressed Steel
Statham Instruments
Stocker & Yale
Sylvania Chemical
Unitek Corp
Vacuum Tube Prods
Weldmatic Div

WICKS FOR WET BULBS

Hill & Co E Vernon

WIRE, Copper, Enameled

Acme Wire Co
Alpha Wire Corp
Amer Super Temp Wires
Anaconda Wire & Cable
Atlas Wire & Cable
Belden Mfg Co
Birnbach Radio Co
Bram Metallurgical Chem
Cable Designs Inc
Consol Reactive Metals
Driver Co Wilbur B
Engelhard Industries
Essex Wire Corp
Hitemp Wires Inc
Illumitronic Engrg
Ind Pyrometer & Supply
Lenz Electric Mfg Co
Lewis Engrg Co
Loral Electronics
Okonite Co
Phelps Dodge Copper Prod
REA Magnet Wire Co
Rome Cable Corp
Secon Metals Corp
Spectra-Strip Wire & Cab
Tensolite Insul Wire
Warren Wire Co

WIRE, Covered

Alpha Wire Corp
Aluminum Co of Amer
Amer Super Temp Wires
Anaconda Wire & Cable
Atlas Wire & Cable
Belden Mfg Co
Birnbach Radio Co
Boston Insulated Wire
Brand-Rex Div
Cable Designs Inc
Chester Cable
Collyer Insulated Wire
Continental Wire Corp
Driver Co Wilbur B
Essex Wire Corp
Gordon Co Claud S
Haveg Industries
Ind Pyrometer & Supply
Lenz Electric Mfg
Lewis Engrg Co
Loral Electronics
Okonite Co
Phalo Plastics Corp
Phelps Dodge Copper Prod
Philadelphia Insul Wire
Plastoid Corp
Revere Corp of Amer
Rockland Insul Wire
Rome Cable Div
Royal Electric Corp
Secon Metals Corp
Sequoia Wire & Cable Co
Spectra-Strip Wire & Cab
Surprenent Mfg Co
Tech Wire Assoc
Tensolite Insul Wire
Thermax Wire
Warren Wire Co
Western Insul Wire

WIRE, Fuse

Cable Designs Inc
Consol Reactive Metals
Driver Co Wilbur B
Engelhard Industries
Haveg Industries
Philadelphia Insul Wire
Secon Metals Corp
Surprenant Mfg Co
Warren Wire Co

WIRE, Insulated, all insulations except enameled and refractory

Acme Wire Co
Alpha Wire Corp
Aluminum Co of Amer
Amphenol Cable
Anaconda Wire & Cable
Atlas Wire & Cable
Belden Mfg Co
Birnbach Radio Co
Boston Insulated Wire
Bram Metallurgical Chem
Brand-Rex Div
Cable Designs Inc
Chester Cable Corp
Cicoil Corp
Collyer Insulated Wire
Continental Wire Corp
Crescent Insulated Wire
Driver Co Wilbur B
Essex Wire Corp
Gordon Co Claud S
Gore & Associates
Haveg Industries
Hitemp Wires Inc
Ind Pyrometer & Supply
Lenz Electric Mfg
Lewis Engrg Co
Loral Electronics
Markel & Sons
Miller Electric Co
Okonite Co
Phalo Plastics Corp
Phelps Dodge Copper Prod
Philadelphia Insul Wire
Physical Sciences Corp
Plastoid Corp
Radiation Applications
REA Magnet Wire Co
Revere Corp of Amer
Rockbestos Wire & Cable Co
Rockland Insul Wire
Rome Cable Div
Royal Electric Corp
Sanders Associates
Secon Metals Corp
Sequoia Wire & Cable Co
Simplex Wire & Cable
Spectra-Strip Wire & Cab
Surprenant Mfg Co
Tech Wire Assoc
Tensolite Insul Wire
Thermax Wire
Times Wire & Cable
Warren Wire Co
Western Insul Wire

WIRE, Magnet

Acme Wire Co
Alpha Wire Corp
Aluminum Co of Amer
Anaconda Wire & Cable
Belden Mfg Co
Birnbach Radio Co
Bram Metallurgical Chem
Cable Designs Inc
Crucible Steel
Essex Wire Corp
Haveg Industries
Hitemp Wires Inc
Illumitronic Engrg
Loral Electronics
Okonite Co
Phelps Dodge Copper Prod
Physical Sciences Corp
REA Magnet Wire Co
Rockbestos Wire & Cable Co
Rome Cable Div
Secon Metals Corp
Simplex Wire & Cable
Spectra-Strip Wire & Cab
Sprague Electric Co
Tensolite Insul Wire
Warren Wire Co

WIRE, Metal Shielded

Aero Research Instr
Alpha Wire Corp
Anaconda Wire & Cable
Birnbach Radio Co
Bishop & Co J
Bram Metallurgical Chem
Brand-Rex Div
Cable Designs Inc
Chester Cable Corp
Collyer Insulated Wire
Continental Wire Corp
Gordon Co Claud S
Haveg Industries
Hitemp Wires Inc
Lenz Electric Mfg
Lewis Engrg Co
Loral Electronics
Markel & Sons
Phalo Plastics Corp
Phelps Dodge Copper Prod
Philadelphia Insul Wire
Plastoid Corp
Precision Tube Co
Revere Corp of Amer
Rockland Insul Wire
Rome Cable Div
Royal Electric Corp
Sequoia Wire & Cable Co
Simplex Wire & Cable
Smith Thermotronics Inc
Spectra-Strip Wire & Cab
Surprenant Mfg Co
Tensolite Insul Wire
Thermax Wire
Times Wire & Cable
Warren Wire Co
Western Insul Wire
Zippertubing Co

WIRE, Miscellaneous, including Bismuth, Columbium, Illium, Molybdenum, special alloy, Tantalum

Accurate Specialties
Alloys Unlimited
American Smelting
Anchor Metals Co
Bishop & Co
Bram Metallurgical Chem
Consol Reactive Metals
Driver Co Wilbur B
Electronic Parts
Elgin Natl Watch
Engelhard Industries
Fansteel Metallurgical
Hoskins Mfg Co
Illumitronic Engrg
Kanthal Corp
Kennametal Inc
Little Falls Alloys
Loral Electronics
Paul F H & Stein Bros
Secon Metals Corp
Semi-Alloys Inc
Sequoia Wire
Smith Thermotronics, Inc
Stretch Wire Corp
Surprenant Mfg Co
Sylvania Chemical
Texas Instruments Inc
United Mineral & Chem
WE-Lamp Div

WIRE, Nickel, Monel, and Nickel Chromium

Alloys Unlimited
Bishop & Co
Bram Metallurgical Chem
Carpenter Steel
Consol Reactive Metals
Crucible Steel
Driver Co Wilbur B

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Thermo Electric makes and stocks thermocouple and thermocouple extension wire and cable for every conceivable need—actually over 1500 different wire combinations of insulation, calibration and gage size. These include all I.S.A. types, "MIL"-Spec and T-E's versatile "Ceramo" wire.

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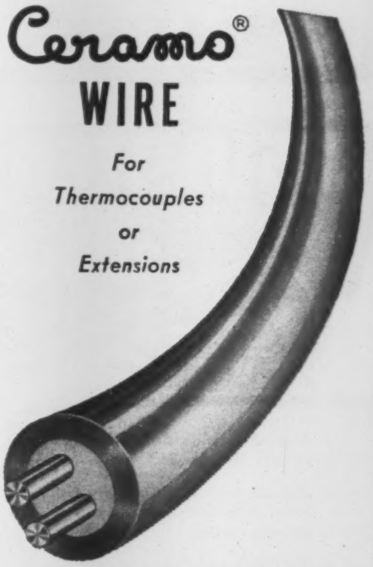

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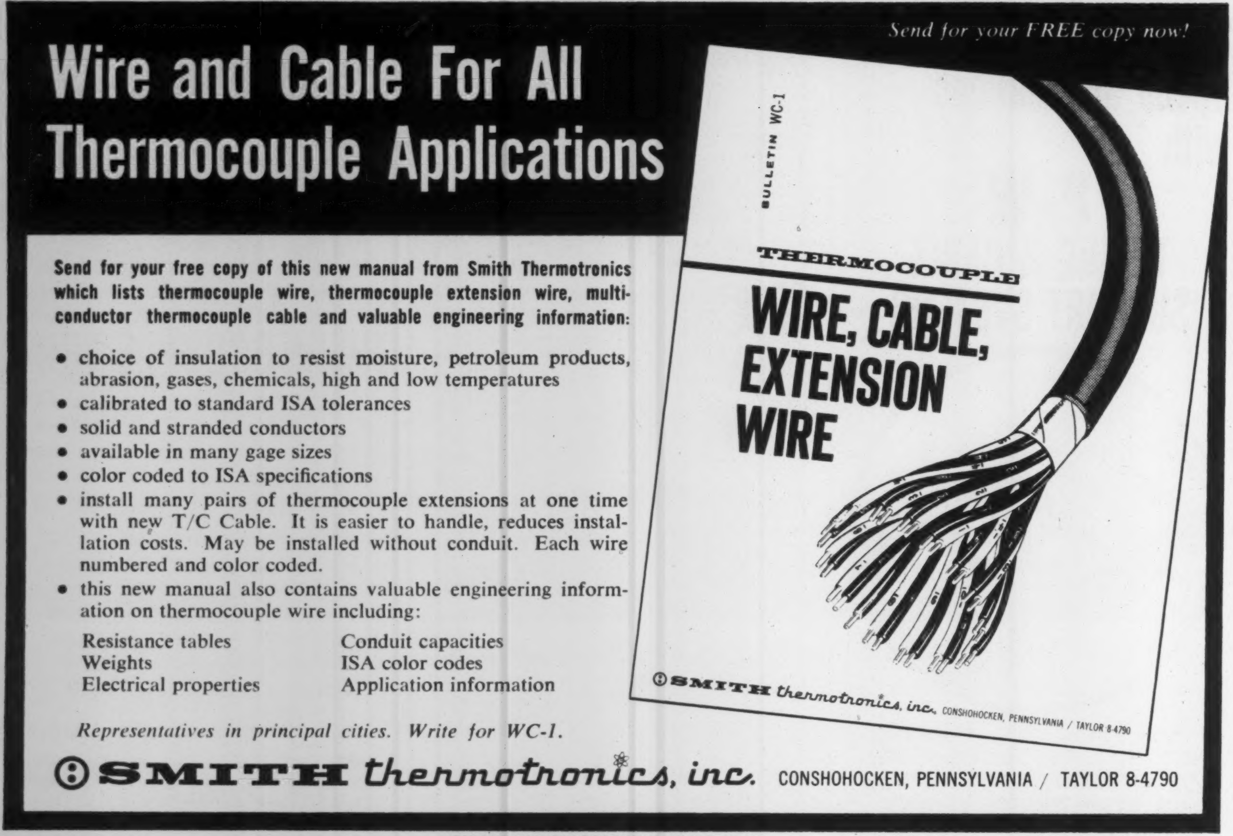
In Canada: THERMO ELECTRIC (Canada) LTD., Brampton, Ont.

CIRCLE 362 ON READER-SERVICE CARD



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Surprenant Mfg Co
Tech Wire Assoc
United Mineral & Chem
Waltham Precision Instr
WE-Lamp Div

WIRE, Refractory Insulated

Aero Research Instr
Bram Metallurgical Chem
Revere Corp of Amer
Richards Co Arklay S
Secon Metals Corp
Smith Thermotronics

WIRE, Resistance (Platinum or Platinum-Iridium)

Anchor Metals Co
Bishop & Co J
Bram Metallurgical Chem
Consol Reactive Metals
Engelhard Industries
Handy & Harman
Metals & Controls Inc
Secon Metals Corp
Semi-Alloys Inc
Thermo Products
United Mineral & Chem
Western Gold & Platinum

WIRE, Resistance, except Platinum and Platinum-Iridium

Anaconda Wire & Cable
Bram Metallurgical Chem
Carpenter Steel
Consol Reactive Metals
Driver Co Wilbur B
Driver-Harris Co
Gow-Mac Instrument
Hoskins Mfg Co
Jelliff Mfg Co
Kanthal Corp
Secon Metals Corp
Surprenant Mfg Co

WIRE, Spring

American Brass Co
Bristol Brass
Consol Reactive Metals
Crucible Steel
Driver Co Wilbur B
Elgin Natl Watch
Hamilton Watch Co
Stretch Wire Corp
Waltham Precision Instr
Warren Wire Co

WIRE, Thermocouple, Base Metal

Aero Research Instr
Bishop & Co J
Bram Metallurgical Chem
Bristol Company
Champion Wire & Cable
Consol Reactive Metals
Continental Sensing
Cox and Company
Dekoron Prod Div
Driver Co Wilbur B
Driver-Harris Co
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Hoskins Mfg Co
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Kanthal Corp
Leeds & Northrup
Lewis Engrg Co
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M-H Brown Instrs Div
Plastoid Corp
Precision Tube Co
Pyrometer Co of Amer
Pyrometer Instr Co
Revere Corp of Amer
Richards Co Arklay S
Secon Metals Corp
Smith Thermotronics
Tech Wire Assoc
Texas Instruments Inc
Thermo Electric
Thermo Products Co
Times Wire & Cable
West Instrument

WIRE, Thermocouple, Rare Metal

Aero Research Instr
Bishop & Co J
Bram Metallurgical Chem
Bristol Company
Consol Reactive Metals
Continental Sensing
Engelhard Industries
Gordon Co Claud S
Harco Labs
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Metals & Controls Inc
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Nanmac Corp
Pyrometer Co of Amer
Revere Corp of Amer
Richards Co Arklay S
Secon Metals Corp
Smith Thermotronics
Texas Instruments Inc
Thermo Electric
Thermo Products Co
United Mineral & Chem
West Instrument
Western Gold & Platinum

WIRE, Wollaston (for Cross Wires)

Bishop & Co J
Consol Reactive Metals
Engelhard Industries
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Secon Metals Corp

WRENCHES, Socket Instrument

Armstrong Bros Tool
Bristol Co
Ideal Aerosmith
Ingersoll-Rand Co
Morris Co J I
PIC Design Corp
Standard Pressed Steel
Standard Screw Co
Stevens Walden Inc
Westinghouse Electric

WRENCHES, Torque

Apco Mossberg
Gallien & Son
Ingersoll-Rand Co
Jo-Line Tools
Overload Control
Paterson Co S D
Richmont Inc
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look under the variable, e.g., Pressure Gages (not Gages, Pressure); or look under the noun—Magnets, Permanent (not Permanent Magnets).

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INCLUDES NAME, ADDRESS, AND (IN MOST CASES) TELEPHONE NUMBERS OF MANUFACTURERS—EXCLUSIVE U.S. SALES AGENTS—AND MANY MANUFACTURERS' REPRESENTATIVES. ADVERTISERS IN THIS BUYERS' GUIDE ARE LISTED IN BOLDFACE TYPE.

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A'G'A Division, Elastic Stop Nut Corp. of America, 1027 Newark Ave., Elizabeth 3, N. J. ELizabeth 2-2900

AMP Inc., Eisenhower Blvd., Harrisburg, Pa. JO-4-0101

A.P.W. Co., 72 West Main St., Rockaway, N.J., OAkwood 7-0643

ARCCO Instrument Co., 7144 E. Condor St., Los Angeles 22, Calif.
(See advertisement on page 57)

A. R. F. Products, Inc., 7627 Lake St., River Forest, Ill. FOrest 9-6000

AR&T Electronics Inc., a subsidiary of Baldwin Piano Co., 1101 McAlmont St., Little Rock, Ark. FR-5-6441

ASCOP, a division of Electro-Mechanical Research, Inc. Princeton, N. J. SW-9-1000

ASEA Electric, Inc., 500 Fifth Ave., New York 36, N. Y.

Abacus, Inc., 1718 21st St., Santa Monica, Calif. EXbrook 3-9777

Abalon Precision Mfg. Corp., 540 Casanova St., N. Y. 59, N. Y. LUdlow 9-5682

Abbeon Incorporated, 179-15 Jamaica Ave. Jamaica 32, N. Y. AXtel 7-5600 or 7-1200

Abbott Products, Inc., 14-10 123rd St., College Point 56, N. Y., FLushing 8-1400

Abrams Instrument Corp., 606 E. Shiawassee St., Lansing 1, Mich. IV-4-9441

Abtronics Inc., 64 South P St., Livermore, Calif. HIlltop 7-4785

Accuracy, Inc., 4 Gordon St., Waltham 54, Mass. TWinbrook 4-1126

Accuracy Scientific Instrument Co., 335 E. Chew Ave., Philadelphia 20, Pa. DA 4-5689

Accurate Instrument Co., 2414 West Alabama, Houston 6, Texas JA-6-4947

Accurate Specialties Co. Inc., 345 Lodi St., Hackensack, N. J.

Ace Electronics Assocs., Inc., 99 Dover St., Somerville, Mass. SO-6-5130

Ace Glass Inc., N. W. Blvd., Vineland, N. J., OXford 2-3333

Ace Plastic Co., 91-30 Van Wyck Expwy., Jamaica 35, N. Y. JAmaica 3-5500

Acheson Colloids Company, 2180 Washington Ave., Port Huron, Mich., YUkon 4-4171

Ackerman Engravers Inc., 458 Broadway, New York 13, N. Y. BArclay 7-1479

Ackerman-Gould Co., Inc. 10 Neil Ct., Box 188, Ocean Side, L. I., N. Y. ORiole 8-4110

Ac-Lab Equipment Co., 675 Timpson Place, New York (Bronx) 55, N. Y. LUdlow 5-2720-1

Acme Electric Heating Corp., 99 Reading St., Roxbury 19, Mass.

Acme Gauge & Instrument Co., Inc., 30 Main St., Brooklyn 1, N. Y. TR-5-9536

Acme Industrial Co., 200-222 N. Laflin St., Chicago 7, Ill. MO-6-4122

Acme Scientific Co., 1450 W. Randolph St., Chicago 7, Ill. MOnroe 6-1834

Acoustica Associates, Inc., 10400 Aviation Blvd., Los Angeles, Calif. SP 6-2840

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Acromag, Inc., 22515 Telegraph Rd., South Field Mich.

Acromark Co., 11 Morrell St., Elizabeth 4, N. J. ELizabeth 2-6500

Acton Laboratories, Inc., 533 Main St., Acton, Mass. COlonial 3-7756

Actuator Products, Div of Geartronics Corp., 12 Nashua St., Woburn, Mass. WElls 3-1400

Adage, Inc., 292 Main St. Cambridge 42, Mass. UNiversity 4-6620

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Advanced Electronics Corp., 2 Commercial St., Hicksville, N. Y. OV-1-6400

Advanced Instruments, Inc., 1475 Powell St., Emeryville 8, Calif. OLympic 4-7186

Advanced Instrument Corp., 700 South Fourth St., Richmond, Calif. BE-5-5433

Advanced Measurement Instr. Inc., 109 Dover St., Somerville 44, Mass., SOmerset 6-8008

Advanced Products Co., 59 Broadway, North Haven, Conn. CEdar 9-1664

Advanced Research Associates, Inc., 4130 Howard Ave., Kensington, Md. WHitehall 2-4800

Advanced Technology Laboratories, 369 Whisman Road, Mountain View, Calif. YOrkshire 8-4461

Ad-Yu Electronics Lab, Inc. 249 Terhune Ave., Passaic, N. J.
(See advertisement on page 114)

Aero Electronics Corp., 1745 W. 134th St., Gardena, Calif. FAculty 1-2196

Aero Research Instrument Co., Inc. 315 N. Aberdeen St., Chicago 7, Ill. TAylor 9-6400
(See advertisement on page 206)

Aero Service Corp., 210 E. Courtland St., Philadelphia 20, Pa. GLadstone 7-3000, Ext. 215

Aeroflex Corp., The, Lab Division, 48-25 36th St., Long Island City 1, N. Y., STillwell 6-3315

Aeronautical & Instrument Div., Robertshaw-Fulton Controls Co., Santa Ana Freeway at Euclid Ave., Anaheim, Calif. KEystone 5-8151

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Ainsworth & Sons, Wm., Inc., 2151 Lawrence St., Denver 2, Colo. ALpine 5-1723

Air Conditioning Equipment Corp., 219 E. 44th St., New York 17, N. Y. MU-7-3099

Airborne Accessories Corp., 1414 Chestnut Ave., Hillside 5. N. J. MU-8-0280
(See advertisement on page 178)

AirBorn Connectors, Inc., 2618 Manana Dr., P. O. Box 13232, Dallas 20, Tex., FL 2-5642 or 1648

Airborne Instruments Laboratory Division of Cutler-Hammer, Deer Park, Long Island, New York Myrtle 2-6100

Airborne Research & Devp. Corp., 7530 San Fernando Rd., Sun Valley, Calif., TR 7-9647

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Aircraft/Electronic Controls Div., General Controls Co., 1320 South Flower St., Burbank, Calif.

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Aircraft & Missile Consultants 2722 Ardmore Ave., Manhattan Beach, Calif., FRontier 4-0626

Airesearch Manufacturing Div., Garrett Corp., 9851 So. Sepulveda Blvd., Los Angeles 45, Calif. SPring 6-1010

Airflow Co., 400 S. Stonestreet Ave., Rockville Md., GA 4-6166

Airflyte Electronics Company, 535 Avenue A, Bayonne, New Jersey Hemlock 6-2230

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Airmatic Valve, Inc., 7313 Associate Avenue, Cleveland 9, Ohio

Air-Maze Div. of Rockwell Standard Corp., 25000 Miles Rd., Cleveland 28, Ohio AXminster 2-6800

Air-O-Tronics Engineering Co., P. O. Box 8, Morrisville, New York

Airpax Electronics Inc., Seminole Division, Fort Lauderdale, Fla. LUdlow 3-6160

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Airtron, a division of Litton Industries, 200 Hanover Ave., Morris Plains N. J. JEfferson 9-5500

Airtronics Inc., 5221 River Road Washington 16, D. C. OLiver 4-1676

Aladden Electronics, 703 Murfreesboro Rd., Nashville 10, Tenn., CHapel 2-3411

Alconox, Inc., 853 Broadway, New York 3, N. Y. GRamercy 3-1300-01

Alden Electronic & Impulse Recording Equipment Co., Alden Research Center, Westboro, Mass. FOrest 6-4467

Alden Products Co., 126-D N. Main St., Brockton, Mass. JUniper 3-0160

Alectric Manufacturing Company, 7842-39th Ave., Kenosha, Wis. OLympic 7-3248

Alfa-American Corp., 303 W. 42nd St., New York 36, N. Y. PLaza 7-7120

Alfax Paper & Engineering Co. Inc., Washington St., Westboro, Mass. FOrest 6-4467

Alford Manufacturing Co., 299 Atlantic Ave., Boston 10, Mass. HAncock 6-2150

Alfred Electronics, 3176 Porter Dr. Stanford Industrial Park, Palo Alto, Calif. DAvenport 6-6496

Alina Corp., 122 E. 2nd St., Mineola, L. I., N. Y. PI-7-5336

All American Tool & Mfg. Co., 8027 Lawndale Ave., Skokie, Ill. ORchard 3-7084

Allegany Instrument Company, 1091 Wills Mountain, Cuberland, Maryland PA-4-1200

Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh 22, Pa. COurt 1-5300

Allegri-Tech, Inc., 141 River Rd., Nutley, N. J.

Allen Avionics Inc., 255 East 2nd St., Mineola, L. I., N. Y. PI-7-5450

Allen Business Machines, R. C., Inc., 678 Front Ave., N. W. Grand Rapids 4, Mich. GL-6-8541, Ext. 313

Allenair Corp., 255 East 2nd St., Mineola, L. I., N. Y. PL-7-5480

Allen-Bradley Co., 136 W. Greenfield Ave., Milwaukee 4. Wis. OR-1-2000

Allied Control Co. Inc., 2 East End Ave., New York 21, N. Y. BUtterfield 8-7403

Allied Radio Corp., 100 N. Western Ave., Chicago 80, Ill. HAymarket 1-6800

Allied Research Associates, Inc., 43 Leon St., Boston 15, Mass., GA 7-2434

Allied Witan Co., 12500 Bellaire Rd., Cleveland 35, Ohio, 941-2800

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Allison Laboratories, Inc., 11301 East Ocean Avenue, La Habra, Calif. OWen 1-0115

Allmetal Screw Products Co., Inc., 711 Stewart Ave., Garden City, New York PIoneer-1-1200

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Almo Mfg. Co., 113-119 Sussex Ave., Newark 3, N. J. HU-2-2185

Alnor Instrument Co. Div., Illinois Testing Labs., Inc., 420 N. LaSalle St., Chicago 10, Ill. WHitehall 3-1331

(See advertisement on page 63)

Alpha Metals Inc., 60L Water Street, Jersey City, N. J. HEnderson-4-6778

Alpha-Molykote Corp., 65 Harvard Ave., Stamford, Conn. FIreside 8-3724

Alpha Plastics, Inc., 78 Okner Parkway, Livingston, N. J. WYman-2-6400

Alpha Tech Products, P. O. Box 111, Appleton, Wis.

Alpha Wire Corp., 200 Warick St., New York 14, N. Y. ALgonquin 5-5400

Alpitec, Inc., 49 Gleason Ave., Stamford, Conn. FIreside 8-7788

Altair, Inc., Hillside Ave., Terryville, Conn. LUdlow 3-1343

Altec Lansing Corp., 1515 South Manchester, Anaheim, Calif. PR-4-2900

Alteneder & Sons, Theo., 1217 Spring Garden St., Philadelphia 23, Pa. POplar 5-3180

(See advertisement on page 151)

Alto Scientific Co., 4083 Transport St. Palo Alto, Calif., DAvenport 1-3434

Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa. ATlantic 1-4545

Amatom Electronic Hardware Co., Inc., 88 Drake Ave., New Rochelle, N. Y. BEverly 5-4441

Amco Engineering Co., 7333 W. Ainslie St., Chicago 31, Ill. UNderhill 7-8500
New England Representative
Instrument Dynamics, Inc.
11 Albion St., Wakefield, Mass.
Telephone 245-5100

Amelco, Inc., 12964 Panama St., Los Angeles 66, Calif. UPton 0-5473

Amerac, Inc., Dunham Road, Beverly, Mass. WAlker 2-8611

Amerelay Corp., 130 County Courthouse Rd., New Hyde Park, N. Y. PIoneer 7-2150

Ameresco, Inc., 13 Center Ave., Little Falls, N. J., CLifford 6-0582

American Balance Corp., 48 Potter Ave., New Rochelle, N. Y. NE 6-8080

American Bosch Arma Corp., 320 Fulton Ave., Hempstead, N. Y. PIoneer 2-2000

American Brass Co., 414 Meadow St., Waterbury 20, Conn.

American Cystoscope Makers, Inc., 8 Pelham Parkway, Pelham Manor (Pelham), N. Y. PElham 8-4800

American Electric Cable Co., 181 Appleton St., Holyoke, Mass., JEfferson 9-9893

American Electrical Heater Co., 6110 Cass Ave., Detroit 2, Mich. TRinity 5-2505

American Electronic Laboratories, Inc., P.O. Box 552, Lansdale, Pa. WA 5-8780

American Electronics, Inc., 1725 W. 6th St., Los Angeles 17, Calif. DUnkirk 5-7401

American Felt Co., Glenville, Conn., JEfferson 1-8700

American Gas Furnace Co., 140 Spring St., Elizabeth, N. J. EL-2-2120

American Kloeckner-Moeller Corp., 4113 E. 11th St., Tulsa 12, Okla. WEbster 6-3048

American Laubscher Corp., 250 W. 57th St., New York 19, N. Y. JUdson 6-7474

(See advertisement on page 200)

American Lava Corp., Manufacturers Rd. & Cherokee Blvd., Chattanooga 5, Tenn. AMherst 5-3411

American Measurement & Control, 240 Calvary, Waltham 54, Mass. TWinbrook 4-6212
Rep—North New Jersey, New York State
Instrument Sales Corporation
Hartsdale, N. Y.
SCarsdale 5-0800

American Meter Co., 13500 Philmont Ave., Philadelphia 16, Pa. ORchard 3-2100

(See advertisement on page 198)

Albany Representative
96 South Swan Street, Albany, N. Y.
ALbany 4-9760

Atlanta Representative
200 Ottley Dr., N.E., Atlanta 24, Ga.
TRinity 6-6783—84

Baltimore Representative
506 Maryland Trust Bldg., Baltimore 2, Md.
LExington 9-5706

Birmingham Representative
1511 Brown-Marx Bldg., Birmingham 3, Ala.
ALpine 1-8361 or ALpine 2-5507

Boston Representative
250 Stuart Street, Rooms 901-902, Boston 16, Mass.
HUbbard 2-8558—59

Calgary Representative
525A-7th Ave., W. Calgary, Alta., Canada
AMherst 3-0745

Chicago Representative
122 So. Michigan Avenue, Chicago 3, Ill.
HArrison 7-2802

Denver Representative
818 17th Street Bldg., Denver 2, Colo.
ALpine 5-9978

Edmonton Representative
9919-65th Avenue, Edmonton, Alberta, Canada
P.O. Box 4339, So. Edmonton
GEneva 9-4938

Fullerton Representative
300 N. Gilbert Avenue, Fullerton, Calif.
P.O. Box 2007, Orangehurst Station
LAmbert 5-8237

Garland Representative
4400 Forest Lane, Garland, Texas
P.O. Box 309
BRoadway 6-6134

Houston Representative
667 San Jacinto Bldg., Houston 2, Texas
CApiton 2-9051

Kansas Representative
900 Dwight Bldg., Kansas City 5, Mo.
VIctor 2-5176

Milton Representative
Canadian Meter Co., Ltd.
P. O. Box 470, Milton, Ontario, Canada
TRiangle 8-2361

Minneapolis Representative
3100 Humboldt Ave., So. Minneapolis 8, Minn.
TAylor 3-7396

New York Representative
60 East 42nd Street, New York 17, New York
MUrray Hill 7-6980

Omaha Representative
1109 W.O.W. Bldg., Omaha 2, Nebr.
WEbster 2002

Pittsburgh Representative
733 Washington Rd., Pittsburgh 28, Penna.
LEhigh 1-2822

Philadelphia Representative
13500 Philmont Ave., Philadelphia 16, Pa.
ORchard 3-2100

San Francisco Representative
206 World Trade Center, San Francisco 11, Calif.
GArfield 1-5975

Tulsa Representative
709 Kennedy Bldg., Fourth St. & Boston Ave.,
P.O. Box 839, Tulsa 1, Oklahoma
LUther 3-5163

Wynnewood Representative
50 East Wynnewood Rd., P.O. Box 175,
Wynnewood, Penna.
TRinity 8-2790 or MIdway 2-9192

American Name Plate & Mfg. Co., 4254 West Arthington St., Chicago 24, Ill. SAcramento 2-2100

American Optical Co., Instrument Div., Box "A", Buffalo 15, N. Y. FI. 4000

American Pamcor, Inc. a Subsidiary of AMP Inc., 181 Hillcrest Ave., Havertown, Pa. HIlltop 6-5800

American Paulin System, 1524 So. Flower St., Los Angeles 15, Calif. RI 9-0013

American Precision Engraving Co., 68 E. Post Road, White Plains, N. Y. ROckwell 1-3358

American Printed Circuits Co. Inc., 104 Forrest St., Metuchen, N. J. LIberty 8-5777

American Research Corp., Farmington 8, Conn.

(See advertisement on page 27)

American Sealants Co., 705 N. Mountain Rd., Hartford 11, Conn., CH 9-8536

American Smelting and Refining Co., Federated Metals Div., 120 Broadway, New York 5, N. Y. REctor 2-9500

American-Standard Controls Div., 5900 Trumbull, Detroit 8, Mich., TR 2-0300

American-Standard Controls Division, Rochester Instrument Plant, Rockwood St., Rochester 10, N. Y., BRowning 1-2020

American Super-Temperature Wires, Inc., W. Canal St., Winoski, Vt.

American Television & Radio Co., 300 E. Fourth St., St. Paul 1, Minn. CApital 2-3791

American Thermo Electric Co., 1023 N. Fuller Ave., Los Angeles 46, Calif. HOllywood 4-1632

(See advertisement on page 186)

American Thermo-Ware Co., 12-16 Warren St., New York 7, N. Y.

American Time Products, Div. Bulova Watch Co., Inc., 61-20 Woodside Ave., Woodside 77, N. Y.

American Tradair Corporation, 34-01 30 Street, Long Island City 6, New York EM-1-1414

Amglo Corp., 4333 N. Ravenswood Ave., Chicago 13, Ill. BUckingham 1-2727

(See advertisement on pages 131, 169, 189)

Amot Controls Corp., 1st Street and Nevin Ave., Richmond, Calif. BEacon 2-0476

Ampco Mfg. Co., 246 E. 2nd St., Plainfield, N. J. PLainfield 7-4600

Amperex Electronic Corp., 230 Duffy Ave., Hicksville, L. I., N. Y. Wells 1-6200

Amperite Co., Inc., 561 Broadway, New York 12, N. Y. CAnal 6-1446

(See advertisement on page 179)

Ampex Computer Products Co., 9937 Jefferson Blvd., Culver City, Calif., VErmont 7-5321 or UPton 0-8571

Ampex Corporation, 934 Charter St., P. O. Box 5000 Redwood City, Calif. EMerson 9-7111

Ampex Corp. Instrumentation Div., 934 Charter St. Redwood City, Calif. EMerson 9-1481

Ampex Magnetic Tape Products—Orr Industries Co., A Division of Ampex Corp., P. O. Box 190, Opelika, Alabama SHerwood 5-7643

Amphenol-Borg Electronics Corp., Packaged Electronics Div., 2801 S. 25th Ave., Broadview, Ill. COlumbus 1-2000

Amphenol Cable & Wire Division, Amphenol-Borg Electronics Corp., S. Harlem Ave., at 63rd St., Chicago 38, Ill. BIshop 2-1000

Amphenol Connector Div., Amphenol-Borg Electronics Corp., 1830 S. 54th Ave., Chicago 50, Ill. BIshop 2-1000

Amphenol IP-DK (Indus. Prods.-Danbury Knudsen) Div., Amphenol-Borg Electronics Corp., 33 E. Franklin, Danbury, Conn. PIoneer 3-9272

Amphenol Western Division, Amphenol-Borg Electronics Corp., 9201 Independence Ave., Chatsworth, Calif. DIamond 1-0710

Amplifier Corp. of America, 398 Broadway, New York 13, N. Y. WOrth 6-2929

Amthor Testing Instrument Co Inc., 45-53 VanSinderen Ave. Brooklyn 7, N. Y. DIckens 6-8841

(See advertisement on page 147)

Anaconda Metal Hose Division—The American Brass Co., 698 South Main St., Waterbury 20, Conn. PLaza 4-1121

Anaconda Wire & Cable Company, 25 Broadway, New York 4, New York HAnover 2-6300

Anadex Instruments, Inc., 14734 Arminta St., Van Nuys, Calif. STate 0-7911

Analab Instrument Corp., 30 Canfield Road, Cedar Grove, N. J. CEnter 9-6500

Analogue Controls, Inc., 200 Frank Road, Hicksville, N. Y. OVerbrook 1-7300

Analytic Systems Co., 980 N. Fair Oaks Ave., Pasadena Calif. MUrray 1-6634

Analytical Measurements, Inc., 585 Main St., Chatham, N. J. MErcury 5-7474

(See advertisement on page 42)

Anchor Metals Co. Inc., 968 Meeker Ave., Brooklyn, N. Y.

Anders Electric Products Inc., 50 Brook Road, Needham Heights, Mass. HIllcrest 4-6990

REPRESENTATIVES

Albany 5, New York
Colello Engineering Company
30 Wilkins Ave. IVanhoe 2-2852

New York 36, New York
Symon Associates
550 Fifth Ave. JUdson 6-7771

Radnor, Pennsylvania
Emlen-Peterson Company
Montgomery Lane at King of Prussia Rd.,
MUrray 8-0151

Anderson Laboratories, Inc., 501 Park Avenue., West Hartford, Conn. AD 3-4491

Anderson Co., V. D., Division of International Basic Economy Corp., 1935 West 96th Street, Cleveland 2, Ohio OL-1-1900

Anderson & Sons Inc., N. Elm St., Westfield, Mass. LOgan 2-9671

Andromeda, Inc., 1151 Viers Mill Rd., Wheaton, Md. LOckwood 5-3775

ANelex Corporation, 150 Causeway St., Boston 14, Mass. RI-2-1720

Anemostat Corp. of America, 10 E. 39th St., New York 16, N. Y. LExington 2-1400

Anetsberger Brothers, Inc., 186 North Anets Dr., Northbrock, Ill. CRestwood 2-0770
(See advertisement on page 26)

Angler Industries Inc., 3 Lexington Dr., Metuchen, N. J. LIberty 9-0582

Annin Company, 1040 S. Vail Ave., Montebello, Calif. RAymond 3-9351

Representative—So. Ohio, So. Indiana
The Isaacs Co.
595 E. Galbraith Rd., Cincinnati 15, Tel: 761-8855
2676 Salem Ave., Dayton 6, Ohio. CR 5-6141

Annis Co., R. B., 1101 N. Delaware St., Indianapolis Ind. ME-5-2838
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Antenna & Radome Research Assoc., 27 Bond St., Westbury L. I., N. Y. ED-4-8770

Apco Mossberg Co., Attleboro, Mass.

Apex Scientific Co., 59 Donna Maria Way, Orinda 4, Calif. DRake 6-5041

Appalachian Electronic Instruments, Inc., 810 W. Monroe Ave., Ronceverte, W. Va. MIdway 7-5855

Applied Dynamics Corp., 330 Bear Hill Road, Waltham 54, Mass. TWinbrook 4-7010

Applied Electronics Corporation of N. J., 22 Center, Metuchen, New Jersey LIberty 9-1500

Aplpied Instruments, Inc., 25 Will Place, Brooklyn 7, N. Y. CLoverdale 7-0885

Applied Physics Corp., 2724 So. Peck Road, Monrovia, Calif HIllcrest 6-7181

Applied Radiation Corp., 2404 No. Main St., Walnut Creek, Calif. YEllowstone 5-2250

Applied Research Laboratories, Inc., P. O. Box 1710, Glendale, Calif. CHapman 5-5524

Arcweld Mfg. Co., Box 311, Grove City, Pa. Grove City 1470

Arenberg Ultrasonic Laboratory, Inc., 94 Green St., Jamaica Plain 30, Mass. JAmaica 2-8640

Arens Controls, Inc., 2017 Greenleaf St., Evanston, Ill. DA 8-4700
(See advertisement on page 161)

Argonaut Associates Inc., P. O. Box 273., Beaverton, Org., CYpress 2-3149

Aries Laboratories Inc., 225 Greenwich Ave., Stamford, Conn., DAvis 5-4124

Aristo Grid Lamp Products, Inc., 65 Harbor Road, Port Washington, L. I. N. Y. PO-7-6577
(See advertisement on page 131)

Arizona Tool & Die Co., 31 East Rillito St., Tucson, Arizona MAin 3-8842

Ark Electronics Corp., 624 Davisville Rd., Willow Grove, Penna., Oldfield 9-4121

Arkwin Industries Inc., 648 Main St., Westbury, L. I., N. Y. EDgewood 3-2640

Arma Division, American Bosch Arma, Roosevelt Field, Garden City, N. Y. PIoneer 2-2000

Armel Electronics Inc., 1601-75 St. N. Bergen, N. J. UNion 9-4300

Armour Alliance Industries, Cushioning Products, 16123 Armour St., N. E., Alliance, Ohio TAlbot 1-3510

Armstrong Bros. Tool Co., 5200 W. Armstrong Ave. Chicago 46, Illinois ROdney 3-3333

Arnold Engineering Co., P. O. Box G, Marengo, Ill., Chicago ANdover 3-6300

Arnold Magnetics Corp., 6050 W. Jefferson Blvd., Los Angeles 16, Calif. VE-7-5313 or UP-0-6284

Arnolt Corp., Argonne Rd., Warsaw, Ind., AMherst 7-7111

Arnoux Corp., 11924 W. Washington Blvd., Los Angeles 66, Calif. TExas 0-5371

Arra Electronics, 27 Bond St., Westbury, L. I., N. Y. ED 4-8770

Artisan Electronics Corp., 171 Ridgedale Ave., Morristown, N. J. JEfferson 8-8500

Artisan Industries Inc., 63 Pond St., Waltham 54, Mass. TWinbrook 3-6800

Artisan Metal Works Co., 11400 Madison Ave., Cleveland 2, Ohio. LAkewood 1-6173

Artronic Instrument Co., 11232 Triangle Lane, Silver Spring, Md. LOckwood 5-4447

Asam Manufacturing Co., 1627 W. Fort St., Detroit 16, Mich. WOodward 1-8374

Ashland Electric Products Inc., 32-02 Queens Blvd., Long Island City 1, New York EXeter 2-4010

Askania-Werke U. S. Branch Office 4913 Cordell Ave., Bethesda 14, Md. OLiver 4-6060
(See advertisement on page 134)

Assembly Products, Inc., 75 Wilson Mills Road, Chesterland, Ohio. HAmilton 3-4436 (Cleveland)

Associated Control Equip., Inc., P. O. Box 136, Coraopolis, Pa. AMherst 4-8161
(See advertisement on pages 50, 52, 53, 183)

Associated Engineering Corp., 65 Kent St., Brookline 46, Mass., ASpinwall 7-4664

Associated Research, Inc., 3766 W. Belmont Ave., Chicago 18, Ill. COrnelia 7-4040
(See advertisement on page 111)

Associated Specialties Co., 1751 Main St., Orefield, Pa. EX-5-1275
(See advertisement on page 115)

Associated Testing Laboratories, Inc., 117 Route 46, Wayne, N. J.; Southeastern Div., 1112 Solana Ave., Winter Park, Fla.

Associated Valve Co., 337 W. Walnut St., North Wales, Pa. OXbow 9-4485

Astra Corp., 412 S. Warminster Rd., Hatboro, Pa.
(See advertisement on page 46)

Astra Technical Instrument Corp., 12930 Panama St., Los Angeles, Calif. EXmont 1-8278

Astral Electronics, Inc., 14620 Arminta St., Van Nuys, Calif. STate 0-3270

Astromics, Div. of Mitchell Camera Corp., 666 W. Harvard St., Glendale 4, Calif. CHapman 5-7586

Astron Corp., 255 Grant Ave., East Newark (Harrison P. O.) N. J. HUmboldt 2-7800

Astrosystems, Inc., 220 E. 23rd Street, New York 10, N. Y. MU 9-6890

Atkins Technical Inc., 1276 W. 3rd St., Cleveland 13, Ohio SUperior 1-1333

Atkomatic Valve Company, Inc., 545 West Abbott Street, Indianapolis 25, Indiana MElrose-8-6545

Atlantic Pyrometers, Inc., 190 Warburton Ave., Hawthorne, N. J. HAwthorne 7-5877

Atlantic Research Corp., Shirley Highway at Edsall Rd., Alexandria, Va. FLeetwood 4-3400

Atlantis Electronics Corp., 3326 Broadway St., P. O. Box 451, Garland, Texas BRoadway 8-3551

Atlas Electric Devices Co., 4114 N. Ravenswood Ave., Chicago 13, Ill EA-7-4520

Atlas Engineering Co., Inc., 10 Cheney St., Roxbury, Mass. HI-5-7100

Atlas Powder Company, Ordnance Materiel Dept., Wilmington 99, Del., OLympia 8-9311

Atlas Precision Products Company, 3801 Castor Avenue, Philadelphia 24, Pa. JE 5-3700

Atlas Valve Co., 280 South St., Newark 5, N. J.

Atlas Wire & Cable Co., Inc., 45 Vesey St., New York 7, N. Y., BA 7-6465-6

Atlee Corp, Atlas Div., 47 Prospect St., Woburn, Mass., WElls 3-5390

Atohm Electronics; 7648 San Fernando Road, Sun Valley, Calif. TRiangle 7-9873

Atronic Products Division General Atronics Corporation 1 Bala Ave., Bala-Cynwyd, Pa. Greenwood 7-1860

Atwood & Morrill Co., 48 Loring Ave., Salem, Mass. PIoneer 4-5690

Auburn Mfg Co., 50 Stack St., Middletown, Conn. DIamond 6-6631

Audio Development, see ADC Products

Audio Devices, Inc., 444 Madison Ave., New York 22, N. Y. PLaza 1-6640

Audio Instrument Co., Inc., 135 W. 14th St., New York 11, N. Y. ORegon 5-7820

Auerbach Electronics Corp., 1634 Arch St., Philadelphia, Pa. LOcust 3-7737

Auth Electric Company Inc., 34-20 45th St., Long Island City 1, N. Y., AStoria 8-7000

Auto-Control Laboratories, Inc., 5251 W. Imperial Highway Los Angeles, Calif. OR-8-4934

Auto-Swage Products, Inc., 227 Canal St., Shelton, Connecticut, REgent 5-3361

Autoclave Engineers Sales Corp., W. 22nd St., Erie, Pa. TE 8-2071

Automark Marking Equipment Co., 430 Industrial Drive Maryland Heights, St. Louis Mo. PRospect 3-0567

Automatic Control Co., 995 University Ave., St. Paul 4, Minn. MI-6-1801

Automatic Electric Sales Co., Northlake, Illinois. FIllmore 5-7111

Automatic Metal Products Corp., 323 Berry St., Brooklyn 11, N. Y. EV-8-6057

Automatic Scale Co., Inc., 180 Lafayette St., New York 13, N. Y. CAnal 6-7676

Automatic Switch Co., 50-56 Hanover Rd., Florham Park, N. J. FRontier 7-4600
(See advertisement on page 83)

Automatic Timing & Controls Inc., 201 Old Gulph Road, King of Prussia, Penna. BRoadway 9-1100
(See advertisement on pages 19, 24, 74, 174)

Automatic Valve Co., 37415 Grand River, Farmington, Mich. GR-4-6700

Automation Inc., 212 Worcester St., Wellesley Hills 82, Mass., CEdar 5-6621

Automation Controls Corp., 5737 W. 98th St., Los Angeles 45, Calif. SPring 6-0420

Automation Corp of America, 5546 Satsuma Ave., North Hollywood, Cal., POplar 9-2170

Automation Development Corporation, 18824 W. Jefferson Blvd., Culver City, Cal., EXmont 1-6259

Automation Devices Inc., 3125 Brandes, Erie, Pa. GL-6-5381

Automation Dynamics Corp., 225 County Road, Tenafly, New Jersey LOwell 7-3232

Automation Engineering Laboratory, Inc., 84 Commerce Rd., Stamford, Conn., DAvis 3-1101

Automation Gages Inc., 100 Seneca Ave., Rochester 21, New York FIllmore 2-8900

Automation Products, Inc., 3030 Maxroy, Houston 24, Tex., UN-9-1485

Automotive & Aircraft Div., American Chain & Cable Co., Inc., 601 Stephenson Bldg., Detroit 2, Mich.

Autonetics Industrial Products, a Div. of No. American Aviation, Inc., 3400 E. 70th St., Long Beach 5, Calif. MEtcalf 4-3220

Autotron, Inc., 3629 N. Vermilion St., Danville, Ill. HIckory 6-0650-1

Autotronics, Inc., P. O. Box 208, Florissant, Mo. TEmple 7-3565

Avco Corp., Research & Advanced Dev., Div. 201 Lowell St., Wilmington, Mass. OLiver 8-8911. X2700

Avien, Inc., 58-15 Northern Blvd., Woodside 77, N. Y. YE 2-4600

Avins Industrial Prods. Corp., 50 Broadway, New York 4, N. Y., WHitehall 4-5390
(See advertisement on page 201)

Avnet Instrument Corp., Div. of Avnet Electronics Corp. 70 State St., Westbury, N. Y. PO-7-7700

Avtron Manufacturing, Inc., 10409 Meech Avenue, Cleveland 5, Ohio MIchigan 1-8310

Axler Associates 33 University Rd., Cambridge 38, Mass.

B

B & B Magnetics Co., 331 E. 4th Ave., La Habra, Calif. OWen 7-8712

B & F Instruments, Inc., 3644 N. Lawrence St., Philadelphia 40, Pa. GArfield 5-4175
Rep—E. Pa., S. N. J., Dela., Md., D. C. Va.
Polymetric Devices Company
130 S. Easton Rd., Glenside, Pa. TU 7-9610
933 Gist St., Silver Spring, Md. Tel: 585-9230

B-I-F Industries, Inc., 345 Harris Ave., Providence 1. R. I. GAspee 1-4302

B & K Instruments, Inc., 3044 West 106 St., Cleveland 11, Ohio CLearwater 1-8430

B & K Manufacturing Co., 1801 W. Belle Plaine Ave., Chicago 13, Ill., EA 7-7270

B/W Controller Corp., 2200 E. Maple Road, Birmingham, Mich. MI 4-5940

Babcock Electronics Corp., 1640 Monrovia Ave., Costa Mesa, Calif., Liberty 8-7705

Bacharach Industrial Instrument Co., 200 N. Braddock Ave., Pittsburgh 8, Pa. CHurchill 2-5400

Bache & Co., Semon, 636 Greenwich St., New York 14, N. Y. WAtkins 4-2121

Bacon Industries, Inc., 192 Pleasant St., Watertown 72, Mass. WAtertown 4-5000

Badger Meter Mfg. Co., 4545 W. Brown Deer Road, Milwaukee 23, Wis. FLagstone 5-0400

Bailey Co., Chas. M., 667 Folsom St., San Francisco 7, Calif. EXbrook 7-1611

Bailey Meter Co., 1041 Ivanhoe Rd., Cleveland 10, Ohio. GL-1-4600
(See advertisement on pages 17, 18, 19, 28, 29, 34, 38, 39, 44, 49, 54, 56, 65, 89, 92, 163, 179)

Baird-Atomic, Inc., 33 University Rd., Cambridge 38, Mass. UNiversity 4-7420

Baker Company, Inc., The 106 Granite St., Biddeford, Me. ATlantic 4-5951. Western Div., Box 597, Chandler, Ariz. YOrktown 3-4551

Balco Research Laboratories, Capicator Div., 49-53 Edison Pl., Newark 2, N. J. MI-3-5200

Bald Eagle Corp., 356 Cedar St., St. Paul 1, Minn. CA-2-7257

Baldwin-Lima-Hamilton Corp., Electronics & Instrumentation Div., 42—4th Ave., Waltham 54, Mass. TWinbrook 4-6700

Baltimore Biological Laboratory Inc., 2201 Aisquith St., Baltimore 18, Md.

Baranoff & Associated, A. J., 1214 Park Lane, Santa Ana, Calif. Kimberly 3-6229
(See advertisement on page 22)

Barber Colman Co., 1700 Rock St., Rockford, Ill. WO-86833 Motors and Components Div., 1300 Rock St., Rockford, Ill.

Barden Corp., 200 Park Ave., Danbury, Conn. PIoneer 9201

Barker & Williamson Inc., Canal & Beaver Dam Rds., Bristol, Pa. STillwell 8-5581

Barksdale Valves, 5125 Alcoa Ave., Los Angeles 58, Calif. LUdlow 9-6181

Barnes Development Co., 213 W. Baltimore Ave., Lansdowne, Pa. MAdison 6-3294

Barnes Engineering Co., 30 Commerce Rd., Stamford, Conn. FIreside 8-5381

Barnstead Still & Sterilizer Co. 243 Lanesville Terrace, Boston 31, Mass. JA-4-3100

Barton Instrument Corp., 580 Monterey Pass Rd., Monterey Park, Calif. CUmberland 3-6501

Pittsburgh and Buffalo Representatives
M. S. Jacobs & Associates, Inc.
810 Noblestown Rd., Pittsburgh 5. WAlnut 2-4212
1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229

Barworth, Inc., 681 Morris Turnpike, Springfield, N. J. Dr-6-4883

Basler Electric Co., Route 143, P. O. Box 269, Highland, Ill. Telephone 2123

Baso Inc., 730 No. Jackson St., Milwaukee 1, Wis. BRoadway 3-5388

Bastian-Blessing Co., 4201 West Peterson Ave., Chicago 46, Ill. MUlberry 5-1121

Bausch & Lomb Inc., 73861 Bausch St., Rochester 2, N. Y. LOcust 2-3000

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(See advertisement above)

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Bayside Timers, 43-69 162nd, Flushing 58, N. Y.

Beach-Russ Co., 420 Lexington Ave., New York 17, N. Y., ORegon 9-7636

Bead Chain Manufacturing Co., 110 Mountain Grove St., Bridgeport 5, Conn. EDison 4-4124

Beamco, Inc., Irving Park and Church Roads, Bensenville, Ill. POrter 6-6500

Bear Manufacturing Co., Industrial Div., 2016—5th Ave., Rock Island, Ill. Telephone 6-6461

Bearing Inspection, Inc., 3311 E. Gage Ave., Huntington Park, Calif., LUdlow 2-6431

Beattie-Coleman, Inc., 1000 North Olive, Anaheim, Calif. PRospect 4-4503

Beaver Gear Works, Inc., 1025 Parmele St., Rockford, Ill. WOodland 3-9691

Bebell & Bebell Color Laboratories, 108 West 24th St., New York 11, N. Y. WAtkins 4-8573

Beck Co., Harold, 3640 N. Second St., Philadelphia, Penna.
(See advertisement on page 76)

Becker Brothers Carbon Co., 3450 So. Laramie Ave., Cicero 50, Ill. BIshop 2-1260

Beckman Instruments Inc., Berkeley Div., 2200 Wright Ave., Richmond Calif. LA-6-7730

Beckman Instruments, Inc., Helipot Div., 2500 Harbor Blvd. Fullerton, Calif. TRojan 1-4848

Beckman Instruments, Inc., Scientific & Process Instrs. Div., 2500 Fullerton Rd., Fullerton Calif. TRojan 1-4848

Beckman Instruments, Inc., Spinco Div., 1117 California Ave., Palo Alto Calif. DAvenport 6-1970

Beckman Instruments, Systems Div., 2400 Harbor Blvd. Fullerton, Calif. PRospect 4-5430

Beckman & Whitley, Inc., 993 E. San Carlos Ave. San Carlos, Calif.

Beck's Incorporated, 300 E. Fifth St., St. Paul 1, Minn., CA 4-6465 or 4-6812

Beede Electrical Instrument Co., Inc., So. Main St., Penacock, New Hampshire. PLaza 3-6362

Behlman Engineering Co., 2911 Winona Ave., Burbank, Calif. VIctoria 9-5733

Behr-Manning Co., Div. of Norton Co., Dept. 6166, Troy, N. Y.

Bekey Electric Div., Genisco Inc., 2245 Federal Ave., Los Angeles 64, Calif. GRanite 8-1276

Bel-Art Products, Pequannock, N. J., OXbow 4-0500

Belden Mfg. Co., 415 S. Kilpatrick Ave., Chicago 44, Ill., EStabrook 8-1000

Belfab Corp Municipal Airport, Dayton Beach, Fla., Clinton 3-0628

Belfort Instrument Co., 4 N. Central Ave., Baltimore 2, Md. DI-2-2626

Bell Corp., Box 849, Odessa, Texas
(See advertisement on page 24)

Bell, Inc., F. W., 1356 Norton Ave., Columbus 8, Ohio, AX 4-4906

Bell & Gossett Co., Morton Grove, Ill. INdependence 3-4040
(See advertisement on page 17)

Bellco Glass Inc., Edrudo Road, Vineland, N. J. OX-1-1075

Bellmore Gear Div. (see Empire State Laboratories)

Bellofram Corp., Blanchard Rd., Burlington Mass. BRowning 2-2100

Bellows-Valvair, 230 West Market St., Akron 3, Ohio FR-6-2174

Belock Instrument Corp., 112-03 14th Ave., College Point 56, N. Y. HIckory 5-4200

Bemco Inc., 9908 San Fernando Rd. Pacoima, Calif.

Bendix Corporation, Bendix-Pacific Division Instrumentation, 11600 Sherman Way, North Hollywood, Calif., POplar 5-1010

Bendix Corp., Cincinnati Div., 3130 Wasson Road, Cincinnati 8, Ohio. ELmhurst 1-2323

Bendix Computer Div., Bendix Corp., 5630 Arbor Vitae St., Los Angeles 45, Calif. SPring 6-2220

Bendix Corporation, Eclipse-Pioneer Div., Teterboro, N. J., ATlas 8-2000

Bendix Corp., Friez Instrument Div., 1400 Taylor Ave., Baltimore 4, Md. VAlley 5-5200

Bendix Corp., Montrose Div., So. Montrose, Pa. Montrose 570

Bendix Corp., Pioneer Central Div., Davenport, Iowa Telephone 4-9101

Bendix Radio Div., The Bendix Corp., E. Joppa Rd., Towson 4, Md., VAlley 3-2200

Bendix Corp., Scintilla Div., Sidney, N. Y. IOwell 3-9511

Bendix Corp., Utica Div., 211 Seward Ave., Utica N. Y. SWift 7-2500

Bendix Corporation—York Division, York Pa.

Bentley Scientific Co., 2811 Seventh St., Berkeley 10, Calif. THornwall 3-6306

Bentley-Harris Mfg. Co. Hector & Lime Sts., Conshohocken, Pa. TAylor 8-7600

Bergen Labs., Inc., 60 Spruce St., Paterson 1, N. Y. GR-3-7800

Berger & Sons, Inc., C. L., 37 Williams St., Boston 19, Mass. HIghlands 2-5100

Berkeley/Dynamics, P. O. Box 1098, Burlingame, Calif. DI-3-8707

Berkshire Laboratories, 582 Bank Village, Greenville, N. H. Greenville 111

Bernco Engineering Corp., 2320 So. Tibbs Ave., Indianapolis 41, Ind. CHapel 1-2871

Bethlehem Apparatus Co. Inc., 890 Front St., Hellertown, Pa., TE 8-3691

Beva Laboratory, Inc., 185 Fourth St., Trenton, N. J. TUxedo 2-6847

Biddle Co., James G., 1316 Arch St., Philadelphia 7, Pa. LOcust-4-1620
(See advertisement on pages 59, 106, 108, 110)

Biggs Co., Carl H., 1547—14th St., Santa Monica, Calif. GRanite 8-0461

Bill Jack Scientific Instrument Co., 143 South Cedros Street, Solana Beach, Calif. SKyline 5-1551

Bimba Mfg. Co., 101 Main St., Monee, Ill., LOgan 3-4131

B'n-Dicator Co., 17190-27 Danver, Detroit 24, Mich. VA 2-6952
(See advertisement on page 36)

Biophysical Electronics 221 Rock Hill Rd. Bala Cynwyd, Pa. GErmantown 8-5260

Bird & Co., Inc., Richard H., 1 Spruce Street, Waltham 54, Mass. TWinbrook 4-0160
(See advertisement on pages 155, 167)

Birnbach Radio Co., Inc., 145 Hudson Street, New York 13, N. Y. WOrth 6-5611

Bishop & Co., J., Platinum Works, E. King St., Malvern, Pa. NIagara 4-3100

Black & Decker Mfg. Co., Towson 4, Md., VA 3-4400

Black, Sivalls & Bryson, Inc., Controls Div., 7500 East 12th St, Kansas City 26, Missouri Benton 1-7200

Blackhawk Industrial, Div of Blackhawk Mfg. Co. N. 57 W. 13264 Reichert Ave., Butler, Wis., SUnset 1-6600

Blackstone Corporation, 1058 Allen St., Jamestown, New York

Detroit Representative
Basic Service Corporation
10544 Plymouth Rd., Detroit 27, Mich.
VErmont 7-8820

Blaco Mfg. Co., 6541 Euclid Ave., Cleveland 3, Ohio, EXpress 1-0497

Blickman, Inc., S., 534 Gregory Ave., Weehawken, N. J.

Bliley Electric Co., 200 Union Station Bldg., Erie, Pa.

Block Associates, Inc., 385 Putnam Ave., Cambridge 39, Mass.,

Blonder-Tongue Laboratories, Inc., 9 Alling St., Newark 2, N. J. MA-2-8151

Blue M Electric Co., 138th & Chatham St., Blue Island, Ill FUlton 5-9000

Bobrick Aero Missile Products, 1839 Blake Ave., Los Angeles 39, Calif. NOrmandy 2-3188

Bock Machine Co., 2950 Jonrose Ave., Cincinnati 39, Ohio. JA-2-1171

Bodine Electric Co., 2500 W. Bradley Place, Chicago 18, Ill. IRving 8-3515

Bodnar Products Corp., 238 Huguenot St., New Rochelle, N. Y. New Rochelle, 6-4664

Boehm Co., R. A., 58 Brooklyn Ave., Merrick, N. Y.

Boehme, Inc., H. O., 915 Broadway, New York 10, N. Y. SPring 7-2208

Bogart Manufacturing Corp., 315 Seigel St., Brooklyn 6, N. Y. HY-7-4972

Boone Instrument Co., 130 E. 7th St., New York 9, N. Y. ORegon 7-6996

Boonshaft and Fuchs, Inc., Hatboro Industrial Park, Hatboro, Pa. OSborne 2-1240

Boonton Electronics Corp., 738 Speedwell Ave., Morris Plains, N. J.

Boonton Polytechnic Co., Inc., 14 Union St., Rockaway, N. J. OAkwood 7-7461

Borden Chemical Co., Resinite Dept., P. O. Box 430, Compton, Calif. WOodland 3134

Borden Engineering Co., 63 Clinton Ave., New Providence, N J., CR 3-9574

Borg Equipment Div., Amphenol-Borg Electronics Corp., 120 So. Main St., Janesville, Wis. PL-4-6616

Borg Instruments, A Div of Amphenol-Borg Electronics Corp., 902 Wisconsin St., Delavan, Wis. SAratoga 8-5531

Borg-Warner Controls, Borg-Warner Corp., 3300 Newport Blvd. Santa Ana, Calif. KImberly 5-5581

Boston Gear Works, 14 Hayward St., Quincy 71, Mass. PR-3-0400

Boston Insulated Wire & Cable Co., 65 Bay St., Boston 25, Mass COlumbia 5-2104

Boulin Instrument Corp., 10 First St., Pelham, N. Y.
(See advertisement on pages 56, 147)

Bourns, Inc., 6135 Magnolia Ave. Riverside, Calif. OVerland 4-1700

Bowen Corp., 11 University Rd., Cambridge 38, Mass. UNiversity 4-6170

Bowmar Instrument Corp., 8000 Bluffton Rd., Fort Wayne, Ind. SHerwood 3121

Bowser Inc., 1302 E. Creighton Ave., Ft. Wayne 2, Ind. H-2341

Brabender Corp., 244 Saddle River Rd., Rochelle Park, N. J. HUbbard 7-0214-5

Brabender Instruments Inc., C. W. 50 E. Wesley St., South Hackensack, N. J. DIamond 3-8425

Brach Manufacturing Corp., Div of General Bronze Corp., N. J. HUmboldt 2-1500

Bracke-Seib X-Ray Co., Inc., 16 Pelham Bay Park West, Pelham Manor, N. Y. PElham 8-4346

Brady Co., W. H. 727 W. Gendale Ave., Milwaukee 9, Wis. ED-2-8100

Brailsford & Co., Inc., 670 Milton Road, Rye, N. Y. WOodbine 7-1820-21

Brainin Corp C. S., 320 Washington St., Mt. Vernon, N. Y. MO-8-5500

Bram Metallurgical-Chemical Co., 820-65th Ave., Philadelphia 26, Penna., WAverly 4-2121

Brand—Rex Div., William, American Enka Corp., 34 Sudbury Road, Concord, Mass. EMerson 9-9630

Branson Corp., 41 S. Jefferson Rd., Whippany, N. J. TU-7-1100

Branson Instruments, Inc., 37 Brown House Rd., Stamford Conn. DAvis 4-6721

Branson Ultrasonic (See Branson Instruments)

Braun Tool & Inst. Co. Inc., 140 Fifth Ave., Hawthorne, N. J., HAwthorne 7-1773

Breeze Corporations Inc., 700 Liberty Ave., Union, N. J. MUrdock 6-4000

Brevel Products Corp., 601 West 26th St., New York City 1, N. Y. WAtkins 4-4737

Brew & Co., Richard D., 90 Airport Rd., Concord, N. H. CApitol 5-6606

Bridgeport Thermostat Div., Robertshaw-Fulton Controls Co., 155 Hill St., Milford, Conn. TRinity 8-0597

Briggs Filtration Company, River Road, Washington 16, D. C. OLiver 4-7722

Brinkmann Instruments, Inc., 115 Mill Road, Great Neck, L. I. , N. Y. HUnter 2-4900

Bristol Co., Waterbury 20, Conn. PLaza 6-4451
(See advertisement on pages 19, 42, 44, 52, 55, 60, 68, 69, 72, 115, 173)

Bristol Brass Corp., 580 Broad St., Bristol Conn. LUdlow 2-3161

British Industries, see Avnet Instrument

Britton Electronics Corp., 19 Warren Place, Mt. Vernon, N. Y. OW 9-3311

Bronoptics Co., 1665 Oak Knoll Ave., San Marino, Calif. SY-9-1022

Brookfield Engineering Labs., Inc., 240 Cushing St., Stoughton, Mass. Fieldbrook 4-4310

Brooks Instrument Co., 407 W. Vine St., Hatfield, Pa. ULysses 5-5174
Pittsburgh Representative
M. S. Jacobs & Associates, Inc.
810 Nobelstown Road, Pittsburgh 5, Pa.
WAlnut 2-4212

Brooks & Perkins, Inc., 1950 W. Fort St., Detroit 16, Mich. TAshmoo 5-5900

Brothers Chemical Co., 575 Froest St., Orange, N. J., ORange 5-6100

Brown & Sharpe Mfg. Co., 235 Promenade St., Providence 1, R. I., DExter 1-5000

Bruno-New York Industries Corp., 460 West 34th Street, New York 1, N. Y. LOngacre 4-5930

Brunswick Instruments, P. O. Box 813, New Brunswick, N. J. CHarter 7-5919

Brush Instruments Div., Clevite Corp., 37th & Perkins, Cleveland 14, Ohio. ENdicott 1-3315

Bryant Computer Products 850 Ladd Road Walled Lake, Mich. MA 4-4571

Bubble-O-Meter, P. O. Box 338, Temple City, Calif.,

Buchanan Electrical Products Corp., 504 U. S. 22, Hillside N. J. WAverly 3-7474

Buck Instrument Co., Boulder Industrial Park, P. O. Box 930, Boulder, Colorado Hillcrest 2-3741

Bud Radio, Inc., 2118 East 55th St., Cleveland 3, Ohio HEnderson 1-7166
(See advertisement on page 193)

Budd Company, Instrument Div., P. O. Box 245, Phoenixville Pa. WEllington 3-8965

Budd Lewyt Electronics, Inc., 43-22 Queens St., Long Island City 1, N. Y. EX-2-5050

Budd Stanley Co., Inc., 175 Eileen Way, Syosset, Long Island, N. Y., WAlnut 1-7550

Budelman Electronics Corp., 375 Fairfield Ave., Stamford, Conn., FIreside 8-9231

Buehler Ltd., 2120 Greenwood St., Evanston, Ill.

Buff & Buff Mfg. Co., 329 Lamartine St., Jamaica Plain, Mass. JAmaica 4-1770
(See advertisement below)

SURVEYING INSTRUMENTS
and accessories
BUFF AND BUFF MFG. CO.
329 Lamartine St.
Jamaica Plain 30, Mass.

CIRCLE 367 ON READER-SERVICE CARD

Buffalo Hydraulics Div., Houdaille Industries, Inc., 537 E. Delavan Ave., Buffalo 11, N. Y.,

Buffalo Meter Company, Inc., 2917 Main St., Buffalo, N. Y. TF-3-9800

Pittsburgh Representative
M. S. Jacobs & Associates, Inc.
810 Noblestown Road, Pittsburgh 5, Pa.
WAlnut 2-4212

Buhl Optical Co., 1009 Beech Ave., Pittsburgh 33, Pa. FAirfax 1-0076

Building Blocks Electronic Co. 2506 Gerritsen Ave., Brooklyn 29, N. Y. TWining 1-0331
(See advertisement on page 114)

Bulova Research & Development Labs., Division of Bulova Watch Co., Inc. 62-10 Woodside Ave., Woodside 77, N. Y. NEwtown 9-5700

Bulova Watch Co., Electronics Division, 61-10 Woodside Avenue, Woodside 77, N. Y. NEwton 9-5700

Bulow Electric Co., 11000 Capital Ave., Oak Park 37, Mich. LI 7-1133

Bureau of Engraving Inc., Industrial Div., 500 So. 4th St., Minneapolis 15, Minn. FE-9-8721

Burgess Battery Co., Div of Servel, Inc., Foot of Exchange, Freeport, Ill. AD-2-2161
(See advertisement on page 154)

Burke & James Inc., 321 So. Wabash Ave., Chicago 4, Ill. HArrison 7-8393

Burleigh Brooks, Inc., 420 Grand Ave., Englewood, N. J., LOwell 9-9085

Burling Instrument Co., 18 River Rd., Chatham, N. J. MErcury 5-9481
(See advertisement on page 61)

Burmac Electronics Co., Inc., 142 S. Long Beach Rd., Rockville Centre, N. Y. OR-8-3070

Burndy Corp., Omaton Div., Richards Ave., Norwalk, Conn. TEmple 8-4444

Burnell & Co., Inc., 10 Pelham Parkway, Pelham Manor, N. Y. PE-8-5000

Burr-Brown Research Corporation, P. O. Box 6444, Tucson, Ariz., AXtel 8-0772

Burrell Corp., 2223 Fifth Ave., Pittsburgh 19, Pa. GRant 1-2527

Burroughs Corp., 6071 Second Ave., Detroit 2, Mich. TR-5-2260

Burroughs Corp., Electronic Tube Div., P. O. Box 1226, Plainfield, N. J. PL 7-5000

New England Representative
Instrument Dynamics, Inc
11 Albion St., Wakefield, Mass
Telephone 245-5100

Burrows Equipment Co., 1316 Sherman Ave., Evanston, Ill. UNiversity 4-4175

Burton Mfg. Co., 2520 Colorado Ave., Santa Monica, Calif. TExas 0-7561

Burton-Rogers Co., Sales Div., Hoyt Electrical Instrument Works, 42 Carleton St., Cambridge 42, Mass. EL-4-1643

Bush Associates, G. F., Box 175, Princeton, N. J.

Bushnell & Co., D. P., 2828 E. Foothill Blvd., Pasadena, Calif. MU-1-8143

Bussmann Manufacturing Div., Mc-Graw-Edison Co., University at Jefferson, St. Louis 7, Mo. GAfriel 1-1740

By-Buk Co., 4312 W. Pico, Los Angeles 19, Calif. WEbster 6-6151

Bytrex Corp., 50 Hunt St., Newton 58, Mass. WAlnut 6-0360

C

CBS Laboratories, a Division of Columbia Broadcasting System, Inc., 227 High Ridge Road, Stamford, Conn. DAvis 5-4321

CDC Control Services, Inc., 400 S. Warminster Rd., Hatboro, Penna.

CGS Laboratories, Inc. (See Trak Electronics).

C & K Components, Inc., 101-103 Morse St., Newton 58, Mass. WAtertown 6-0800

C-Mar Instrument Corp., 35 Euclid Ave., Manasquan, N. J. CAstle 3-0515

CTS Corporation, 1142-1232 W. Beardsley Ave., Elkhart, Ind. JAckson 3-0210

Cable Designs, Inc., 66 Rushmore St., Westbury, N. Y. EDgewood 3-5323

Caddell-Burns Mfg. Co., Inc., 40 E. 2nd St., Mineola, N. Y. PIoneer 6-2310

Cadillac Rectifier Co., Inc., 571 Webster Ave., New Rochelle, N. Y., New Rochelle 6-3476

Cahn Instrument Co., 14511 Paramount Blvd., Paramount, Calif. NE 69456 (Los Angeles)

Caig Laboratories, 46 Stanwood Road, New Hyde Park, L. I., N. Y. PIoneer 2-0278

Cajon Machine Co., 902 E. 140th St., Cleveland 10, Ohio

Rep—N. Y. State (except Metro), N. Pa.
The Carl A. Pearson Co., Inc.
232 Winton Rd. N., Rochester 10, N. Y.
BUtler 8-2526

Calectron Inc., 2444 Beverly Rd., St. Paul 4, Minn., MI 6-3730

Calibration Standards Corp., 1025 Westminster Ave., Alhambra, Calif., CU 3-8156
(See advertisement on page 124)

California Chassis Co., 5445 E. Century Blvd., Lynwood, Calif. NEvada 6-9931

California Computer Products, Inc., 8714 Cleta Street, Downey, Calif. WAlnut 3-1913 or SPruce 3-4921

California Conrols Co., 1525 Powell Street, Oakland 8, Calif. OLympic 4-8833

California Magnetic Control Corp., 11922 Valerio St., No. Hollywood, Calif. STanley 7-1104

Calif. Technical Indus. Div. of Textron, Inc., 1421 Old County Road, Belmont, Calif. LYtell 3-8466

Caltron Products Co., 3518 W. Pico Blvd., Los Angeles 19, Calif., REpublic 4-2420

Calumet Engineering Co., 2246 Calumet Ave., Chicago 16, Ill. DAnube 6-6858

Cambridge Electronics Corporation, 294 Centre St., Newton 58, Mass. WOodward 9-8890

Cambridge Instrument Co., Inc., Graybar Building, 420 Lexington Ave. New York 17, N. Y. Murray Hill 6-0335

Cambridge Thermionic Corp., 445 Concord Ave., Cambridge 38, Mass. TRowbridge 6-2800

Camera Equipment Co., Inc., 315 W. 43rd St., New York 36, N. Y. JU-6-1420

Campbell Co., Inc., Colin, P. O. Box 529, Miry Brook Rd., Danbury, Conn. PIoneer 3-6701

Canadian Marconi Co., 2442 Trenton Ave., Montreal, P. Q., Canada. REgent 8-9441

Canadian Radium & Uranium Co. 630 5th Ave., New York 20, N. Y. CIrcle 6-0460

Cannon Electric Co., 3208 Humboldt St., Los Angeles 31, Calif. CApitol 5-1251

Cannon Instrument Co., P. O. Box 812, State College, Pa. Phone—Boalsburg—HO-6-6233

Capcon, Inc., 61 Stanton St., New York 2, N. Y. GRamercy 5-0080

Capeway Instrument Corp., 680 No. Bedford St., E. Bridgewater, Mass. DRake 8-3103

Capitol Machine Co., 36 Balmforth Avenue, Danbury, Conn. PIoneer 3-2758

Capitron Div., AMP Inc., 155 Park St., Elizabethtown, Pa. EMpire 7-1105

Carad Corp., 3381 Junipero Serra, Palo Alto, Calf., DA 1-6111

Carbone Corp., 400 Myrtle Ave., Boonton, N. J., DE 4-0700

Carborundum Co., The, Buffalo Ave., Niagara Falls, N. Y., BUtler 5-6631

Cardair Division Marmon-Herrington Co., Inc., 510 Indianapolis Ave Lebanon, Ind. Te.-3360

Cargill Detroit Corp., 1250 Crooks Rd., Clawson, Mich.

Carling Electric Inc., 505 New Park Ave., West Hartford 10, Conn. AD-2-4461

Carlson Co., 3457 Weidner Ave., Oceanside, L. I., N. Y. Rockville Centre 4-8181
(See advertisement on page 146)

Carlton Controls Corp., 15 Sagamore Rd., Worcester 5, Mass., PL 6-7158

Carmody Corporation, 236 O Wehrle Drive, Buffalo 21, N. Y. SPring-7700

Carol Electronics Corp., 315 W. Stephen St., Martinsburg, W. Va. AMherst 7-8911

Carpenter Steel Co., 125 W. Bern St., Reading, Pa. FRanklin 4-8211

Carruthers & Fernandez, Inc., 1501 Colorado Ave., Santa Monica, Calif. EXbrook 4-6768

The J. C. Carter Co., 671 W. 17th St., Costa Mesa, Calif., LIberty 8-3421

Carter Mfg Corp., 23 Washington St., Hudson, Mass. Jordan 2-2206

Carter Motor Co., 2711 W. George St., Chicago 18, Ill. JU 8-7700

Carter Parts Co., 3401 Madison, Skokie, Ill. ORchard 4-0340

Cash Co., A. W., 540 N. 18th St., Decatur, Ill. Telephone 8-3401

Pittsburgh and Buffalo Representatives
M. S. Jacobs & Associates, Inc.
810 Noblestown Rd., Pittsburgh 5, WAlnut 2-4212
1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229

Cash Valve Mfg. Corp., A. W., 666 E. Wabash Ave., Decatur, Ill. Telephone 2-8574

Cassell Co., John R., 110 West 42nd St., New York 36, N. Y. WIsconsin 7-7678

Cast Optics Corp., 123 S. Newman St., Hackensack, N. J. HUbbard 9-4000
(See advertisement on page 163)

Cedar Engineering Div., Control Data Corp., 5806 W. 36th St., Minneapolis 16, Minn., WEst 9-1681

REPRESENTATIVES

CALIFORNIA

Kittleson Co.
416 No. LaBrea Ave., Los Angeles 36
WEbster 3-7317

Kittleson Co.
809 San Antonio Rd., Palo Alto.
DAvenport 6-7410

COLORADO

EMF Associates
P. O. Box B, Englewood
SU 9-9592

FLORIDA

Buchanan & Abrams Assoc., Inc.
1224-26 E. Colonial Drive, Orlando
GArden 3-8995

ILLINOIS

Carlson Electronic Sales
6677 No. Northwest Hwy., Chicago 31
SPring 4-0277

KANSAS

Thunderbird Eng. Sales & Services, Inc.
6405 Kellogg, Wichita
MUrray 4-3941

MARYLAND

East Coast Liaison, Inc.
P. O. Box 243, Lutherville
VAlley 5-449

MASSACHUSETTS

Ress Engineering Sales,
259 Walnut St., Newtonville 60
LAsalle 7-4932

MISSOURI

Thunderbird Eng. Sales & Services, Inc.
2826 Main St., Kansas City
WEstport 1-9779

Thunderbird Eng. Sales & Services, Inc.
7811 Corondelt Ave., St. Louis 5
PArkview 6-1413

NEW YORK

Franklin & Andrews Sales Corp.
12 Preston St., Huntington
MYrtle 2-8686

Ress Engineering Sales
132 Burnet Ave., Syracuse 3
GRanite 1-7571

OHIO

Research Development Prod. Assoc.
5899 Huberville Ave., Dayton 31

Service Equipment Electronics, Inc.
4500 Euclid Ave., Cleveland 3
HEnderson 1-7030

TEXAS

Lawrence Sales Co.
P. O. Box 13026, Dallas 20
FLeetwood 2-7484

UTAH

EMF Associates
138 So. 2nd East, Salt Lake City
EL 5-7101

WASHINGTON

Avionics Liaison, Inc.
6770 Perimeter Rd. So., Seattle 8
PArkway 3-7602

Central Electronic Mfrs., Div. Nuclear Corp. of America, 2 Richwood Place, Denville, N. J. OAkwood 7-4200

Central Research Laboratories, Inc., Red Wing, Minn. DUnkirk 8-3566

Central Scientific Co., 1700 Irving Park Rd., Chicago 13, Ill. WEllington 5-8600

Centralab, The Electronics Div. of Globe Union Inc., 900 E. Keefe Ave., Milwaukee 1, Wis. WOodruff 2-9200

CENTRALAB SALES REPRESENTATIVES

CALIFORNIA: San Francisco
Logan Sales Co.
150 Eighth St., Hemlock 1-0692

CALIFORNIA: Beverly Hills
Walter S. Harmon Co.
P. O. Box 1380, Olympia 2-5616

COLORADO: Denver
McLoud & Raymond Co.
5403 E. Evans, Skyline 6-1589

GEORGIA: Decatur
Frank Nickerson
626 Medlock Rd., P. O. Box 1185, ME 6-2752

ILLINOIS: Chicago
F. L. Tiegs & A. A. MacDonald
5308 W. Diversey, Avenue 6-5366, 67

INDIANA: Indianapolis
L. M. DeVoe Co.
4010 Washington Blvd., Atwater 3-1395-6

IOWA: Cedar Rapids
Jerry Vrbik
419 Third St., S.E., Empire 5-0461

MASSACHUSETTS: Needham
Stanley A. Harris Co.
1241 Highland Ave., Hillcrest 4-4780, 81

MICHIGAN: Detroit
R. C. Merchant
18411 W. McNichols Rd., Kenwood 5-6000

MINNESOTA: Minneapolis
Merrill K. Franklin
338 E. Franklin, Federal 6-2315, 6-6788

MISSOURI: East St. Louis, Illinois
Price Sales Co.
3038 Linden Place BR-1-0726

NEW JERSEY: Nutley
D. P. Galasso
382 Franklin Ave., North 1-1300, Digby 4-1763

NEW YORK: Westfield, N. J.
George P. Marron
712 Norman Place, Adams 2-9448

NEW YORK: Syracuse
Wilson H. Zimmerman
112 DeWitt, Granite 4-4489

OHIO: Brecksville
Allen Nace Co.
P. O. Box 146, Jackson 6-4323

PENNSYLVANIA: Philadelphia
S. K. MacDonald, Inc.
1531 Spruce St., Kingsley 5-1205

PENNSYLVANIA: Narbeth (Philadelphia)
Jerome Bresson
246 Haverford Ave., Greenwood 7-3800

TENNESSEE: Memphis
Al S. Engelman
3205 Crump Avenue, Glendale 8-6263

TEXAS: Dallas
Robert E. Nesbitt
1925 Cedar Springs, Riverside 7-5824

WASHINGTON: Seattle
James J. Backer Co.
221 Galer St., P.O. Box 9077, Atwater 3-6470

CANADA: Ajax, Ontario
Centralab Canada Ltd.
P.O. Box 400, Ajax 320

CANADA: Vancouver
D. E. McLennan
1624 W. Third Ave., Bayview 9251, 9252

HAWAII: Honolulu
Jim Hasten Sales Co.
P. O. Box 2098, 2663 Terrace Drive, Phone 998910

Century Electronics & Instruments, Inc., 1333 N. Utica, Tulsa 10, Okla., LUther 4-7111

Ceramaseal, Inc., P. O. Box 25, New Lebanon Center, N. Y. W. Lebanon 3-5851

Ceramatronics, Inc., 364 Highland Ave., Passaic, N. J. GRegory 3-8274

Cerro Sales Corp., 300 Park Ave., New York 22, N. Y. MUrray Hill 8-8822

Cetron Electronic Corp., 715 Hamilton St., Geneva, Ill., CEnter 2-4140

Chace Co., W. M., 1600 Beard Ave., Detroit 9, Mich., VInewood 2-7400

Chadwick-Helmuth Co., 472 E. Duarte Rd., Monrovia, Calif., EL 8-4567

Champion Wire & Cable Co., Inc., P. O. Box 881 Maywood, N. J. DIamond 3-5233

Chart-Pak, Inc., 1 River Rd., Leeds, Mass. JUstice 4-5446 (Northampton)

Chase Electronic, Inc., Motor Div., 82-31 51st Ave., Elmhurst 73 N. Y., OL 1-0330

Chassis-Trak Inc., 525 S. Webster Ave., Indianapolis 19, Indiana Fleetwood 9-5407

Chatham Controls Corp., 33 River Road, Chatham, N. J ME.-5-8892

Chatillon, John & Sons, 85 Cliff St., New York 38, N. Y. BEekman 3-2552

Chemalloy Electronics Corp., Gillespie Airport, Santee, Calif.

Chemcut Div. of Centre Circuits Inc., P. O. Box 165, 1101 N. Atherton St., State College, Pa., ADams 8-0514

Chemiquip Co., 36 East 10th St., New York 3, N. Y. GRamercy 7-3772

Chesapeake Instrument Corp., Shadyside, Md. UNIversity 7-2151

Chester Cable Corp., Chester N. Y., HOmestead 9-2141

Chicago Aerial Industries, Inc., Kintronic Div., 10134 Pacific Ave., Franklin Park, Ill., GLadstone 1-1830

Chicago-Allis Mfg. Corp., 113-125 N. Green St., Chicago 7, Ill. MO 6-5050

Chicago Condenser Corp., 3255 W. Armitage Ave., Chicago 47, Ill. CApitol 7-7070

Chicago Dial Indicator Co., 180 North Wacker Drive, Chicago 6, Ill. FRanklin 2-9241

Chicago Dynamic Industries, Inc., 1725 West Diversey Blvd., Chicago 14, Ill. WEllington 5-4600

Chicago Miniature Lamp Works, 1500 N. Ogden Ave., Chicago 10, Ill. MOhawk 4-1741
(See advertisement on page 139)

REPRESENTATIVES

ARIZONA, Phoenix
Howe and Howe
4328 No. 42nd Pl., P. O. Box 10497
AM 5-9185

CALIFORNIA, Sherman Oaks
The George Agency
15022 Ventura Blvd.
ST 3-0820

COLORADO, Denver 20
Reitz Sales Co.
1324 Bellaire St.
EAst 2-6200

CONNECTICUT, Old Greenwich
Hoffman Engineering Corp.
183 R Sound Beach Ave.
NEptune 7-1719

MASSACHUSETTS, Brookline 47
Gerber Sales Co., Inc.
48 Pearl St.
BEacon 2-2425
(Br: East Long Meadow, Mass., New Haven, Conn.)

MISSOURI, Kansas City 11
Koenig and Myer Assoc.
4538 Main St., JEfferson 1-7221
(Br: St. Louis, Mo.)

OHIO, New Bremen
Thomas Shelby & Co.
101 W. Monroe
New Bremen 6511

CANADA, Scarborough, Ontario
Lake Engineering Co., Ltd.
123 Manville Rd.
PLymouth 7-3253

PENNSYLVANIA, Newton Square
Ed Kaufholz
P. O. Box 227
ELgin 6-5000

TENNESSEE, Memphis 4
Cartwright & Bean
P. O. Box 5838, 560 S. Cooper St., BR 6-4442
(Br: Charlotte, N. C., No. Miami Beach and Orlando, Fla.)

TEXAS, Dallas 2
Ernest L. Wilks Co
1212 Camp St.
RIverside 7-2937

WASHINGTON, Seattle 99
James J. Backer Co.
221 West Galer St.
ALder 6470

Chicago Molded Products Corp., Custom Div., 1020 North Kolmar Ave., Chicago 51, Ill. DIckens 2-9000

Chicago Standard Transformer Corp., 3501 W. Addison St., Chicago 18, Ill. INdependence 3-7400

Christie Electric Corp., 3410 West 67th St., Los Angeles 43, Calif., PLeasant 0-1151

Christman Industries, Inc., 1562-61st St., Brooklyn 19, N. Y., DEwey 1-6072

Chrono-Log Corp., 2583 West Chester Pike, Broomall, Pa. ELgin 6-6771
(See advertisement on page 89)

Churchill Lighting Corp., 344 Franklin St., Melrose 76, Mass. NOmandy 5-4700

Cicoil Corp., 13833 Saticoy St., Van Nuys, Calif., STate 1-3440

Cimron Corporation, 1152 Morena Blvd., San Diego 10, Calif. BRowing 6-3200

Cincinnati Sub Zero Products, 3930 Reading Road, Cincinnati 29, Ohio PLaza 1-8810

Cincinnati Time Recorder Co., 1733 Central Ave., Cincinnati 14, Ohio. CHerry 1-1995

Circle Seal Products Co., Inc., 2181 E. Foothill Blvd., Pasadena, Calif. MUrray 1-0234

Circo Ultrasonic Corp., 51 Terminal Ave., Clark N. J. FUlton 8-8600

Circon Component Corp., Santa Barbara Municipal Airport, Goleta, Calif. WOodland 7-1113
(See advertisement on page 172)

Clairex Corporation, 8 West 30th St., New York 1, N. Y. MUrray Hill 4-0940;

Clare & Co., C. P., 3101 Pratt Blvd., Chicago 45, Ill. AMbassador 2-7700

Clark Controller Co., 1146 E. 152nd St., Cleveland 10, Ohio, ULster 1-2000

Clark-Cooper Division, F. B. Stevens Inc., 305 Market St., Palmyra (Burl. Cty) N. J. TAlmadge 9-1447

Clark Electronic Laboratories, Box 165 Palm Springs, Calif., 328-2210

Clark Flexible Link Shaft Co., P. O. Box 73, Newton Highlands 61, Mass.

Clark Manufacturing Co., 1830 E. 38th St., Cleveland 14, Ohio. EX 1-1414

Clarkson Laboratories, Inc., 1450 Ferry Ave., Camden 4, N. J. WOodlawn 6-5200

Clarostat Mfg. Co., Inc., Dover, N. H., SHerwood 2-1120

Clary Corp., Electronics Div., 408 Junipero St., San Gabriel, Calif. ATlantic 7-6111

Clean Tread Mat Div., Merit Paper & Chemical Corp., 57 Regent St., Cambridge 40, Mass. TR-6-6122

Clegg Laboratories, Div. of Clegg, Inc., Rt. 53 Mt. Tabor, N. J. JE 8-7214

Cleveland Instrument Co., 6220 East Schaff Rd., Cleveland 31, Ohio, LAfayette 4-4821

Cleveland Metal Specialties Co., Electronics Div., 1783 E. 21st St., Cleveland 14, Ohio

Cleveland Worm & Gear Division Eaton Manufacturing Co., 3300 E. 80th St., Cleveland 4, Ohio. VU 3-4560

Clevite Transistor Products Div., Clevite Corp., 241 Crescent St., Waltham 54, Mass. TWinbrook 4-9330

Clifton Precision Prods. Co., Inc., Marple at Broadway, Clifton Heights, Pa. MAdison 2-1000

Clough-Brengle Co., 6014 N. Broadway, Chicago 40, Ill. AMbassador 2-2200

Clover Industries, Inc., Dept. #3, 578-588 Young St., Tonawanda, N. Y. LUdlow 1331 & 32

Coast Coil Co., 5333 W. Washington Blvd., Los Angeles 16, Calif. WE 6-6188

Coast Instrument, Inc., 4811 Long Beach Blvd., Long Beach, Calif. GArfield 2-3411

Cobehn, Inc., 226 Passaic Ave., Caldwell, N. J. CApital 6-6675

Co-Engineering Co., P. O. Box 194, Boonton, N. J. DEerfield 4-9300

Cobon Plastics Corp., 42 Lafayette St., Newark 2, N. J., MArket 3-5383

Coil Winding Equipment Co., Railroad Plaza Oyster Bay, N. Y. WAlnut 2-5660

Cole Electric Co., 8439 Steller Dr., Culver City, Calif., UPton 0-4701

Cole Hersee Co., 20 Old Colony Ave., South Boston 27, Mass., ANdrew 8-2190

Coleman Electronics, Inc., 133 East 162nd St., Gardena, Calif. FAculty 1-4775

Coleman Engineering Co., Inc., 3500 Torrance Blvd., Torrance, Calif. FAculty 1-3900

Coleman Instrument Co., Inc., 716 So. Troost, P. O. Box 5127 Tulsa 16, Okla., LUther 7-6691

Coleman Instruments, Inc., 42 Madison St. Maywood, Ill. FI-5-9400

Collectron Corp., 304 E. 45th St., New York City 17, N. Y. MU 9-7120

Collins Corp., G. L., 2820 E. Hullett St., Long Beach 5, Calif. MEtcalf 0-3121

Collins Electronics, Inc., Stevensville, Md., MIssion 3-4661

Collins Microflat Co., 3249 W. El Segundo Blvd., Hawthorne, Calif., OR 8-7694

Collins Radio Co., 855 35th St., N. E., Cedar Rapids, Iowa. EMpire 3-0281

Collins Radio Co., Information Science Center 19700 San Joaquin Road P. O. Drawer 1787 Newport Beach, Calif.

Collyer Insulated Wire Co., 249 Roosevelt Ave., Pawtucket, R. I., PAwtucket 3-7800

Colonial Kolonite Co., 2232 W. Armitage Ave., Chicago 47, Ill.
(See advertisement on page 201)

Colorado Research Corp., Broomfield, Colorado, INgersoll 6-2331

Columbia Electric Mfg. Co., 4519 Hamilton Ave., Cleveland 14, Ohio. ENdicott 1-8060

Columbia Research Laboratories, Inc., MacDade Blvd. & Bullens Lane, Woodlyn, Pa. LEhigh 2-9464

Columbia Technical Corp., 61-02 31st Ave., Woodside 77, N. Y., AS 8-7401

Columbus Electronics Corp., 1000 Saw Mill River Rd., Yonkers, N. Y., YO 8-1221

Colvin Laboratories, Inc., 364 Glenwood Ave., East Orange, N. J. ORange 7-1221

Comar Electric Co., 3349 Addison St., Chicago 18, Ill. JUniper 8-2410
(See advertisement on page 177)

Combination Pump Valve Co., 851 Preston St., Philadelphia 4, Pa. EVergreen 6-6508

Commercial Filters Corp., 2 Main St., Melrose 76, Mass. DAvenport 4-7000

Commercial Iron Works, 2424 Porter St., Los Angeles 21, Calif. MAdison 7-1051

Commercial Optical Mfg., Inc., 118 Bridge St., P. O. Box 474, Huntington 2, W. V. JAckson 2-1946

Commercial Plastics Co., 945 George St., Chicago 14, Ill. GRace 7-8220

Communication Accessories Co., U. S. Highway 50 and 71 By-Pass, Lee's Summit, Mo. BRoadway 1-1700 LAclede 4-3500

Communication Measurements Lab., Inc., 350 Leland Ave., Plainfield, N. J. Plainfield 4-5502

Communications Control Corp., 14707 Keswick St., Van Nuys, Calif., ST 2-4250

Component Research Co., Inc., 3019 S. Orange Dr. Los Angeles 16, Calif. WE-3-1105

Components Corp., 2857 N. Halsted St., Chicago 14, Ill., EA 7-6566

CompuDyne Corp., 400 S. Warminster Rd., Hatboro, Penna. OS-5-4100

Computer Control Co., Inc., Eastern Division, 983 Concord St., Framingham, Mass. CE-5-6220 Western Division, 2261 Barry Avenue, Los Angeles 64, Calif. GR-8-0481

Computer Engineering Associates, 350 N. Halstead St., Pasadena, Calif., ELgin 5-7121

Computer Equipment Corp., 11612 W. Olympic Blvd., Los Angeles 64, Calif. GRanite 8-0464

Computer Instruments Corp., 92 Madison Ave., Hemptead, L. I., N. Y. IVanhoe 3-8200
(See advertisement on pages 93, 165)

Computer Meaurement Co., a Div of Pacific Industries, Inc., 12970 Bradley Ave., Sylmar Calif., EMpire 7-2161

New England Representative
Instrument Dynamics, Inc.
11 Albion St., Wakefield, Mass.
Telephone 245-5100

Computers, Inc., 5123 Glenmont Dr., Houston 36, Texa JAckon 4-9572

Computer Systems Inc., Culver Rd., Monmouth Jct., N. J., **DAvis 9-2351**

Conant Bros. Co., Inc., 427 Riverside Ave., Medford 55, Mass. EXport 5-2240

Conant Laboratories, 6500 O Street, Box 3997, Bethany Station, Lincoln 5, Neb. IVanhoe 8-0432
(See advertisement on page 182)

Conax Corp., 2300 Walden Ave., Buffalo 25, N. Y. REgent 0600

Concord Control Inc., 1282 Soldiers Field Road, Boston 35, Mass. ALgonquin 4-5106

Con-Elco, 1711 S. Mountain Ave., Monrovia, Calif., ELliott 8-4571

Conn Corp., C. G., 1101 Beardsly, Elkhart, Ind., CO 4-1161

Conoflow Corp., 2100 Arch St., Philadelphia 3, Pa. LOcust 7-7560
(See advertisement on pages 44, 50, 77, 80)

Conrad, Inc., 141 Jefferson St., Holland, Mich. EXport 2-3161

Consolidated Airborne Systems, 900 Third Ave., New Hyde Park, L. I., N. Y., HUnter 8-1606

Consolidated Avionics Corp., 800 Shames Dr., Westbury, N. Y. EDgewood 4-8400

Consolidated Controls Corp., 11 Durant Ave., Bethel, Conn., PIoneer 3-6721.

Consolidated Diesel Electric Corp., 880 Canal Street, Stamford, Conn. DAvis 5-2261

Consolidated Electrodynamics Corp., 360 Sierra Madre Villa, Pasadena, Calif. MUrray 1-8421

Consolidated Reactive Metals, Inc., 115 Hoyt Ave., Mamaroneck, N. Y. OWens 8-2300

Consolidated Systems Corp., 1500 So. Shamrock Ave., Monrovia, Calif. ELliott 9-8211

Consolidated Vacuum Corp., 1775 Mt. Read Blvd., Rochester 3, N. Y. GLenwood 3-7972

Contact Inc., P. O. Box 6, Hudson, N. H.

Continental-Diamond Fibre Corp., Newark, Del. ENdicott 8-8531

Continental Equipment Co., Div. of Fisher Governor Co., 200 Main St., Coraopolis, Penna. AM-4-3010

Continental Pump Co., 1027 So. Vandeventer, St. Louis 10, Mo. JEfferson 1-2840

Continental Screw Co., 459 Mt. Pleasant St., New Bedford, Mass. WY 3-2621

Continental Sensing, Inc., 1950 North Ruby St., Melrose Park, Ill. MUrray 1-1950

Continental Wire Sales Corp., 322 North Cherry St., Ext. (P. O. Box 366), Wallingford, Conn. COlony 9-1421

Continental-Wirt Electronics Corp., 26 W. Queen Lane Philadelphia 44, Pa. GErmantown 8-9334

Control—A Division of Magnetics Inc., Butler, Pa. BUtler 7-3787

Control Circuits, Inc., 66 Marlborough St., Portland, Conn. DI-7-4634

Control Corporation, 718 Central Ave., N. E., Minneapolis 14, Minn. FEderal 5-7893

Control Data Corp., 501 Park Ave., Minneapolis 15, Minn. FEderal 9-0947

Control Devices, Inc., 925 S. Eton Rd., Birmingham, Mich., MIdwest 4-4244 or JOrdan 6-1411

Control Dynamics Corporation, 7420 Fulton Ave., North Hollywood, Calif.

Control Electronics Co., Inc., 10 Stepar Place, Huntington Station, L. I., N. Y. HAmilton 7-7961

Control Engineering Co., 8007 Joy Rd., Detroit 4, Mich., WEbster 3-9311

Control Equipment Corp., 19 Kearney Road, Needham Heights 94, Mass. HIllcrest 4-7550

REPRESENTATIVES

Albany 5, New York
Colello Engineering Company
30 Wilkins Ave., IVanhoe 2-2852

Boston (Needham Heights 94), Mass.
Hatch-Hutchinson Associates
19 Kearney Rd., HIllcrest 4-1259

Dallas 30, Texas
N. S. Brown Associates
58[illegible]2 Boca Raton Drive, EM 3-3698

Hartford (Vernon), Connecticut
Hatch-Hutchinson Associates
Phoenix Street, Mitchell 3-0863

Los Angeles 25, California
Charles L. Repp Co.
11168 Santa Monica Blvd., GRanite 2-5990

Montreal 11, P.Q., Canada
Electrodesign Ltd.
9124 St. Lawrence Blvd., DUpont 9-5914

San Francisco (Palo Alto), Calif.
Beall Electronic Sales Co.
P. O. Box 907, DAvenport 1-8501

Control Indicating Corp., Rt. 75 and Spring St., Windsor Locks, Conn., NAtional 3-2481
(See advertisement on page 65)

Control Panel Corp., 517 W. Monroe St., Chicago 6, Ill. DEarborn 2-3228

Control Products Inc., 280 Ridgedale Ave., Harrison, N. J., TUcker 7-5000

America, 4218 W. Lake St., Chicago 24, Ill. VA 6-3100

Control Switch Division, Controls Company of America, 4218 W. Lake St., Chicago 24, Ill. VA 6-3100

Control Technology Co., 41-16 29st, Long Island City, N. Y., EXeter 2-2636

Controlled Atmosphere Enclosures Mfg. Co. Inc., 1061 E. 8th St., Jacksonville 6, Fla., EL 4-5604

Controls Co. of America, 811 W. Broadway, Tempe, Ariz. WO 7-1641

Controls for Radiation, Inc., 130 Alewife Brook Parkway, Cambridge 40, Mass. UN4-3250

Contronics, Inc., 37 Leon, Boston 15, Mass., HI 2-8080

Convair, 1059 Bay Ridge Ave., Pittsburgh 26, Pa.

Convair Instruments, see General Dynamics

Cook Co., Frank R., 3850 Olive St., Denver 7, Colo., FLorida 5-3531

Cook Electric Co., 2700 Southport Ave., Chicago 26, Ill., DIversey 8-6700

Cooke Inc., F. J., 145 Water St., South Norwalk, Conn., TE 8-7546

Cooper Development Corp., 2626 So. Peck Rd., Monrovia, Calif. HIllcrest 6-3138

Cooper Thermometer Co., Pequabuck, Conn., LUdlow 2-9511

Coors Porcelain Co., 600 9th St., Golden, Colorado CR 9-4533

Copease Corp., 425 Park Ave., New York 17, N. Y. PLaza 3-6692

Copymation Inc., 5650 N. Western, Chicago 45, Ill. ED-4-2200

Corbett Science Labs., F. W., 3117 Venice Blvd., Los Angeles 19, Calif. REpublic 3-5251

Corbin Cabinet Lock Div., 102 Washington St., New Britain, Conn. BAldwin 5-7411

Cornelius Company, Aero Division 550 39th Avenue N. E., Minneapolis 21, Minn. SUnset 8-8611

Corning Glass Works, Corning, N. Y. Telephone 2-5011, Electronic Components Dept., 550 High St., Bradford, Pa. FOrest 2-5571

Corona Engineering Service, 94-52 Corona Ave., Elmhurst 73, N. Y. ILlinois 7-2777

Corson Electric Mfg. Corp., 540—39th St., Union City, N. J. UNion 6-4227

Cosa Corp., 405 Lexington Ave., New York 17, N. Y. YUkon 6-9696

Couch Ordnance, Inc., 3 Arlington St., North Quincy 71, Mass., CYpress 8-4147

Coulter Industrial Sales Co., 2525 N. Sheffield Ave., Chicago 14, Ill. TErrace 2-5653

Detroit Representative
Basic Service Corporation
16544 Plymouth Rd., Detroit 27, Mich.
VErmont 7-8820

Cox & Company, Inc., 115 East 23, New York 10, N. Y. ORegon 4-4727

Cox Instruments Div., Geo. L. Nankervis Co., 15300 Fullerton, Detroit 27, Mich. VErmont 8-5780
(See advertisement on page 129)

Rep—So. Ohio, So. Indiana, Kentucky
The Isaacs Co.
595 E. Galbraith Rd., Cincinnati 15. Tel: 761-8855
2676 Salem Ave., Dayton 6, Ohio. CR 5-6141

Craig Systems, Inc., 360 Merrimack St., Lawrence, Mass., MU 8-6961

Cramer Division Giannini Controls Corporation, Centerbrook, Conn. SOuth 7-8255

Cratex Mfg. Co., Inc., 1600 Rollins Rd., Burlingame, Calif.
(See advertisement on page 192)

Crawford Co., C. B., 16606 Waterloo Rd., Cleveland 10, Ohio KE 1-5415

Crawford Fitting Co., 884 East 140th St., Cleveland 10, Ohio Liberty 1-5533
(See advertisement on Inside Back Cover)

Rep—N. Y. State (except Metro), N. Pa.
The Carl A. Pearson Co., Inc.
232 Winton Rd. N., Rochester 10, N. Y.
BUtler 8-2526

Representative—Philadelphia Area
Shelby Jones Co, Inc.
P. O. Box 514, Havertown, Pa.
Hilltop 6-6600

Rep—Pittsburgh, Pa., Charleston, W. Va.
Fogleman Co., Inc.
3849 Willow Ave., Pittsburgh 34, Pa. LE-1-4005
510 "C" St., S. Charleston 3, W. Va. RI-4-8401

EXCLUSIVE DISTRIBUTORS

METRO N. Y. and N. J.
R. S. Crum & Company
1167 Glove Avenue
Mountainside, N. J.
Tel: ADams 2-4444

TEXAS
Thomas A. Reed & Company
P. O. Box 6861
Houston 5, Texas
Tel: JAckson 6-4333

LOUISIANA
Capital Valve & Fitting Co., Inc.
P. O. Box 1902
Baton Rouge, Louisiana
Tel: WAlnut 4-2810

CALIFORNIA
W. D. Wilson Company
1118 Mission Street
South Pasadena, Calif.
Tel: MUrray 2-3327

ILLINOIS
Hinsdale Valve & Fitting Co.
8539 S. Pulaski Road,
Chicago 52, Illinois
Tel: LUdlow 1-2332

WASHINGTON
Automation Products
North 120 Division Street
Spokane 2, Washington
Tel: RIverside 7-2136

Crescent Engineering & Research Co., 5440 N. Peck Rd., El Monte, Calif.

Crescent Insulated Wire & Cable Co., 319 North Olden Ave., Trenton 5, N. J. EXport 6-9111
(See advertisement on page 202)

Rep—N. Y. State (except Metro), N. Pa.
The Carl A. Pearson Co., Inc.
232 Winton Rd. N., Rochester 10, N. Y.
BUtler 8-2526

Rep—Pittsburgh, Pa., Charleston, W. Va.
Fogleman Co., Inc.
3849 Willow Ave., Pittsburgh 34, Pa. LE-1-4005
510 "C" St., S. Charleston 3, W. Va. RI-4-8401

Representative—Philadelphia Area
Shelby Jones Co., Inc.
P. O. Box 514, Havertown, Pa.
HIlltop 6-6600

Crest Instrument Co., 11808 S. Bloomfield Ave., Santa Fe Springs, Calif. UNiversity 3-4781

Croname Inc., 6251 Howard St., Chicago 48, Ill. NIles 7-6100

Crosby-Teletronics Corp., 54 Kinkel St., Westbury, L. I., N. Y. EDgewood 3-1027

Crosby Valve & Gage Co.-The Ashton Valve Co., 43 Kendrick St., Wretham, Mass., EVergreen 4-3121

Crucible Steel Co. of America, P. O. Box 88, Pittsburgh 30, Pa. ATlantic 1-3800

Crump Instrument Corp. (Subsidiary of Houston Instr. Corp.), 1520 Foley St., Houston 24, Tex. HOmestead 8-2969

Cryogenic Engineering Co., 200 W. 48 Ave., Denver 16, Colorado 303 Cherry 4-8691

Crystal Glass Tube & Cylinder Co., 7310 South Chicago Ave., Chicago 19, Ill. DO-3-3277
(See advertisement on page 195)

C-Thru Ruler Co., 327 Windsor St., Hartford 1, Conn. JAckson 7-5231

Cubic Corp., 5575 Kearny Villa Road, San Diego 11, Calif. BRowning 7-6780

Cunningham, Son & Co., Jas., 33 Litchfield St., Rochester 8, N. Y. BAker 5-7240

Cunningham Co., M. E. 1025 Chateau Street, Pittsburgh 33, Pa. AL-1-3280

Cuno Engineering Corp., Sub. of Amer. Machine & Foundry Co., 80 S. Vine St., Meriden, Conn., BEverly 7-5541

Curtis Development & Mfg. Co., 3242 North 33rd St., Milwaukee 16, Wisc. HIlltop 5-1817

Curtis Laboratories, Inc., 2718 Griffith Park Blvd., Los Angeles 27, Calif. NOrmandy 2-1176

Curtiss-Wright Corp., Electronics Div., 35 Market St., East Paterson, N. J., SWarthmore 1-0100. IMI Branch, 4401 Lunada Ave. SE, P. O. Box 8324, Albuquerque, N. Mex. AMherst 8-8791

Detroit Representative
Basic Service Corporation
16544 Plymouth Rd., Detroit 27, Mich.
VErmont 7-8820

Curtiss-Wright, Princeton Div., see Princeton

Curvin Dev. Co., 13735 Saticoy St., Van Nuys, Calif., STate 6-7786

Cushman Precision Industries, 262 Alexander St., Princeton, N. J. WAlnut 1-7008

Custom Component Switches Inc., 3137 Kenwood St., Burbank, Calif. VIctoria 9-5951

Custom Components, Inc., P. O. Box 248, Caldwell, N. J. CAldwell 6-3403-4

Custom Scientific Instruments, Inc., 541 Devon St., Kearny, N. J. WYman 1-6403

Customline Control Panels, Inc., 1379 East Linden Ave., Linden, N. J. HUnter 6-1272

Cutler-Hammer, Inc., 503 No. 12th St., Milwaukee 1, Wis. BRoadway 1-7800

Cycle Equipment Co., 17480 Shelburne Way, Los Gatos, Calif.

Cycle Transformer Corp., 356 Glenwood Ave., E. Orange, N. J.

D

D & R Ltd., 402 E. Gutierrez, P. O. Box 1500, Santa Barbara, Calif. WOodland 3116

Dage Electric Company, Inc., 67 North Second Street, Beech Grove, Ind. State 7-5305

Dage Div., Thompson-Ramo-Wooldridge, 455 Sheridan Ave., Michigan City, Ind. TRiangle 4-3251

Dahl Co., Geo. W., 86 Tupelo St., Bristol, R. I. CLifford 3-9500

Dale Products, Inc., Box 488 Columbus, Neb., LOcust 4-3131

Dales Co., Franklin, 182 E. Mill St., Akron 8, Ohio PO-2-7236

Dalmotor Div., Yuba Consolidated Industries, Inc., 1375 Clay St., Santa Clara, Calif. CHerry 3-9414

Danco Metal Products, Inc., 24018 Detroit Rd., Westlake, Ohio TR-1-2300

Daniel Orifice Fitting Co., Inc., 9720 Katy Rd., Houston 24, Texas. HO 5-3451

Daniels, Inc., C. R. Daniels, Md., HOward 5-1200

Darrill Products Corp., 95 Falmouth St., Attleboro, Mass. ATtleboro 1-4047

Data Display, Inc., 1820 Como Ave., Saint Paul 8, Minn. MIdway 6-8673

Data Products Co., Inc., 7320 Westmore Rd., Rockville, Md., GArden 4-6750

DataLog, a division of Air Logistics Corporation, 2415 Amsler St. Torrance, Calif.

Data-Master Corp., 85 Hazel St., Glen Cove, N. Y., ORiole 6-7300

Datascan Inc., 324 Colfax Ave., Clifton, N. J. PRescott 3-8803

Data Tech, 238 Main St., Cambridge 42, Mass.

Datex Corp., 1307 So. Myrtle Ave., Monrovia, Calif. ELliott 9-5381

Datran Division Automation Industries Inc., 3501 Lamita Blvd. Torrance, Calif.

Daven Company, 530 W. Mt. Pleasant Ave., Livingston N. J., WYman 2-4300

Davenport Mfg. Co., 2530-32 N. Elston Ave., Chicago 47, Ill. DIckens 2-5620

Davidson Optronics, Inc., 223 Ramona Blvd., West Covina, Calif. EDgewood 7-7281
(See advertisement on page 142)

Davidson and Hemmendinger, 2857 Nazareth Rd., Easton, Pa. BLackburn 8-2345, 8-2346

Davies Brothers, Gladstone, N. J., PEapack 8-1290

Davies Molding Co., Harry, 1428 N. Wells St., Chicago 10, Ills., MIchigan 2-7240

Davis Instruments, 47 Halleck St., Newark 4, N. J., HUmboldt 2-3660
(See advertisement on page 33)

Detroit Representative
Basic Service Corporation
16544 Plymouth Rd., Detroit 27, Mich.
Vermont 7-8820

Pittsburgh and Buffalo Representatives
M. S. Jacobs & Associates, Inc.
810 Noblestown Rd., Pittsburgh 5. WAlnut 2-4212
1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229

Davis Regulator Co., 2541 S. Washtenaw Ave., Chicago 8, Ill. BIshop 7-5870

Daystrom, Inc., Control Systems Div., 4455 Miramar Road, LaJolla, Calif. GLencourt 4-0421

Daystrom, Incorporated, Military Electronics Div., Archbald, Pa. JErmyn 1100

Daystrom Inc., Weston Instruments Div., 614 Frelinghuysen Ave., Newark 12, N. J. BIgelow 3-4700

Daystrom Transicoil Corp., Worcester, Penna.

Daystrom/Wiancko Engineering Co., 255 Halstead Ave., Pasadena, Calif., EL-5-7186

Daytronic Corp., 223-227 S. Jefferson St., Dayton 2, Ohio BAldwin 3-7618

Dearborn Electronic Laboratories, Inc., P. O. Box 3431, Orlando, Florida TErrace 8-5400

Dearborn Glass Co., 6600 S. Harlem Ave., Bedford Park, Ill. LU-5-0900

Decker Corp., 45 Monument Rd., Bala-Cynwyd, Penna. MOhawk 4-6700

Defender Instrument & Regulator Co., Boody, Ill. ELwin 2519

Defiance Printed Circuit Corp., 144 Commercial St., Malden 48, Mass., DA 4-8250

DeJur-Amsco Corp., Electronics Div., Northern Blvd. at 45th St., Long Island City 1, N. Y., Ravenswood 1-8000

DeJur-Amsco Corp., Industrial Sales Div., 45-01 Northern Blvd., Long Island City 1, N. Y. RAvenswood 1-4009

Dekoron Products Div., see Samuel Moore & Co.
(See advertisement on page 203)

Delavan Manufacturing Co., 811—4th St., West Des Moles, Iowa
(See advertisement on page 37)

Del Electronics Corp., 521 Homestead Ave., Mt. Vernon, N. Y. OWens 9-2000
(See advertisement on page 119)

Delco Products, Div GMC, 329 East First St., Dayton 1, Ohio, BA 2-0411

Delco Radio Div., General Motors Corp., 700 E. Firmin, Kokomo, Ind. GLadstone 28211

Delmhorst Instrument Co., 683 Cedar St., Boonton, N. J., DEerfield 4-2557

Delsen Corp., 719 W. Broadway, Glendale 4, Cal. CHapman 5-8517

Delta Design Inc., 3163 Adams Ave., San Diego 16, Calif., Sales Office 7460 Girard Ave., LaJolla, Calif. GLencourt 4-1185

Delta-f, Inc., 113 E. State St., Geneva, Ill. Telephone 5600

Deltek Corp., 639 South B St., Tustin, Calif., LIncoln 4-2219

Deltek Corp., 639 South B St., Tustin, Calif., LIncoln 4-2219

Deltime Inc., 608 Fayette Ave., Mamaroneck, N. Y., OWens 8-5800

Deltron, Inc., 4th and Cambria Streets, Philadelphia 33, Pa. RE-9-1101

Deltronic Corp., 929 Baker St., Costa Mesa, Calif., KI 5-0401

DeMornay-Bonardi, 780 So. Arroyo Parkway, Pasadena, Calif., SYcamore 2-4142

Denison Engineering Div., American Brake Shoe Co., 1160 Dublin Road, Columbus 16, Ohio. HUdson 8-1191

Derbyshire, Inc., F. W., 265 Bear Hill Road Waltham, 54 Mass.
(See advertisement on page 197)

Designers for Industry, Inc., 4241 Fulton Pkwy., Cleveland 9, Ohio. SHadyside 9-0700

Designs for Tomorrow, Inc., 6425 Etzel Ave., St. Louis 33, Mo. PArkview 6-5222

Desomatic Products Div., Atlantic Research Corp., 1109 W. Broad St., Falls Church, Va., JEfferson 3-9600

Despatch Oven Co., 619 S. E. 8th St., Minneapolis 14, Minn., FEderal 1-1873

Detecto Scales, Inc., 540 Park Ave., Brooklyn 5, N. Y. MA 4-6100

Detroit Coil Co., 2435 Hilton Rd., Ferndale 20, Mich. JOrdan 6-3950

Deutsch Company, 700 Avalon Blvd., Los Angeles 3, Calif. PLeasant 1-4131—LUdlow 3-6421

De Var Systems, Inc., 494 Glenbrook Rd., Glenbrook, Conn., DA 4-1105

Devco Engineering, Inc., Pier Lane West, Caldwell, N. J. CApital 6-0610

Devcon Corp., 400 Endicott St., Danvers, Mass. SP 4-1990, 1991

Development Engineering Co., Inc., 9 Cross St., Norwalk, Conn. VIctor 7-7720

DeVilbiss Co., 300 Phillips Ave., Toledo 1, Ohio GReenwood 4-5411
DeZurik Corp., Sartell, Minn. BLackburn 1-0221

Pittsburgh and Buffalo Representatives
M. S. Jacobs & Associates, Inc.
810 Noblestown Rd., Pittsburgh 5. Walnut 2-4212
1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229

Dialight Corp., 60 Stewart Ave., Brooklyn 37, N. Y. HYacinth 7-7600
(See advertisement on page 173)

Dialtron Corp., 203 Harrison Place, Brooklyn 37, N. Y. HYacinth 7-7600

Diamond Antenna & Microwave Corp., River St., Winchester, Mass. CRystal 9-4650

Diamond Power Specialty Corp., Electronics Div., P. O. Box 415, Lancaster, Ohio. OLive 3-6540

Dian Laboratories, Inc., 611 Broadway, New York 12, N. Y. AL 4-6555

Di/An Controls, Inc., 944 Dorchester Ave., Boston 25, Mass. HIghlands 5-5640

Diatron Inc., 3339 So. Rice Ave., Houston, Texas

Dice Company, J. W., 16 Highwood Ave., Englewood, N. J., LOwell 9-0471
(See advertisement on page 143)

Dickson Company, 7420 Woodlawn Ave., Chicago 19. Ill. PLaza 2-0089

California Representative
Carkeek Engineering Co., Inc.
285 South Euclid Ave., Pasadena. Calif.
MUrray 1-0489

Diehl Manufacturing Co., 1116 Finderne Ave., Somerville N. J. RAndolph 5-2200

Dietert Co., Harry W., 9330 Roselawn Ave., Detroit 4, Mich. WEbster 3-9790

Dietz Co., Inc., Henry G., 12-16 Astoria Blvd., Long Island City 2, N. Y. RAvenswood 6-3347

Dietz Design, Inc., 12921 Fifth St., Grandview 17, Mo., SOuth 1-7216

Diffraction Prod. Inc., North Maywood Dr. & 17th Ave., Maywood, Ill. FI 3-1546

Diffraction Limited, Inc., 7 Michigan Dr., Natick. Mass., OLympic 3-2830

Digital Equipment Corp., Main St., Maynard, Mass., TWinoaks 7-8822

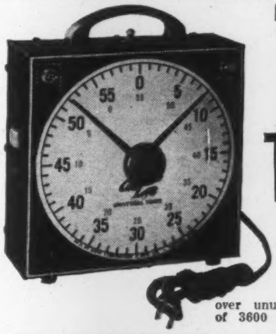
Digitran Co., A Division of Endevco Corp., 660 So. Arroyo Parkway, Pasadena, Calif. MUrray-9667

Digitronics Corp., Albertson Ave., Albertson. L. I., N. Y., HT 4-1000

Dillon & Co., W. C., Inc., 14620 Keswick St., Van Nuys, Calif. STate 5-3168
(See advertisement on pages 72, 145, 147, 148, 149)

Detroit Representative
Basic Service Corporation
16544 Plymouth Rd., Detroit 27, Mich.
VErmont 7-8820

Dimco-Gray Co., 207 E. 6th St., Dayton 2, Ohio BAldwin 2-6703
(See advertisement below)



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Disc Instruments Inc., 3014-B South Halladay Santa Ana, Calif. Kimberly 9-0345
(See advertisement on page 94)

Di-Tran Corp., 11307 Hindry Ave., Los Angeles, Calif., ORgon 8-7141

Dit-Mco Inc., 911 Broadway, Kansas City 5, Mo. HArrison 1-0011

Dittmore—Freimuth Corp., 2517 East Norwich St., Milwaukee 7, Wis. HUmboldt 3-7724

Dixon Inc., William, 32-42 E. Kinney St., Newark 1, N. J.

DJECO Div. of Djordjevic Engineering Co., 1933 N. Damen, Chicago 47, Ill. ARmitage 6-7308

Dmeter Mfg. Co., Inc., P. O. Box 88, Yonkers, N. Y., YOnkers 9-1770

Dole Valve Co., 6201 Oakton Street, Morton Grove, Ill.

Dolin Metal Products, Inc., 315 Lexington Ave., Brooklyn 16, N. Y. AP-7-5696

Dolinko & Wilkens, Inc., 1907 Summit Ave., Union City, N. J. UNion 7-6630

Dollinger Corporation, 81 Centre Park, Rochester 3, N. Y. BAker 5-9405

Donner Scientific Co., 888 Galindo St., Concord, Calif., MUlberry 2-6161

Dorne and Margolin, Inc., 29 New York Ave., Westbury, L. I., N. Y. EDgewood 4-3200

Doress Mfg. Co., 3 Howard St., N. Y. 13, N. Y., WA 5-6130

Dorsett Electronics Laboratories Inc., 119 W. Boyd St., P. O. Box 862, Norman, Okla. JEfferson 4-3750

Douglas Microwave Company Inc., 252 East Third St., Mount Vernon, N. Y. MO-8-6900

Douglas Radio Labs., 176 Norfolk Ave., Boston 19, Mass.

Dow Corning Corporation, Midland, Michigan TEmple 2-2371

Dragon Engineering Co., Inc., 13457 Excelsior Drive. P. O. Box 185, Norwalk, Calif. SP-3-3883

Drake Mfg. Co., 4626 No. Olcott, Harwood Heights, Chicago 31, Ill. UN 7-7227
(See advertisement on page 174)

Dressen-Barnes Corp., 250 No. Vinedo Ave., Pasadena, Calif., SYcamore 5-7731

Dresser Electric Co., 2705 Wight St., Detroit 7, Mich. LOrain 8-1855

Dresser Electronics, SIE Div., 10201 Westheimer Rd., Houston 42, Texas, SUnset 2-2000

Drexel Dynamics Corp., Maple Ave., Horsham, Pa., Phila., 25, Penna.

Driver Co., Wilbur B., 1875 McCarter Highway, Newark 4, N. J. HUmboldt 2-5550

Driver-Harris Co., #201 Middlesex St., Harrison, N. J., HU 3-4800

Drying Systems Co., 1800 Foster Ave., Chicago 40, Ill. ARdmore 1-9100

Dryomatic Corp 715 N. Fayette St. P. O. Box 591., Alexandria, Va. KIng 9-3060

Du-Co Ceramics Company. Box 278. Saxonburg. Pa. FL-2-1511

Ducommun Co., M., Dept. IN, 580 Fifth Ave., New York 36, N. Y. PLaza 7-2540
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DuMont Laboratories, Allen B., Division of Fairchild Camera & Instrument Corp., 750 Bloomfield Ave., Clifton, N. J. PRescott 3-2000

Dumore Company, 1300 Seventeenth Street, Racine, Wis. MElrose 3-8221

Duncan Electric Co., Inc., Lafayette, Ind., SHerwood 2-3002

Dunlee Corporation, 1023 S. Pusheck Road, Bellwood, Ill. COlumbus 1-6931

Dunn Engineering Corporation, 225 O'Brien Highway, Cambridge 41, Mass. UNiversity 4-6700

Du Pont de Nemours & Co. (Inc.), E. I., Photo Products Dep't, Wilmington 98, Del.

Durakool, Inc., 1010 North Main St., Elkhart, Ind.

Duralab Equipment Corp., 979 Linwood St., Brooklyn 8, N. Y. NI 9-0581

Duramic Products Inc., 426 Commercial Ave., Palisades Park, N. J., WI 7-0310

Durant Mfg. Co., 1914 N. Buffum St., Milwaukee 1, Wis. LOcust 2-5035
(See advertisement on page 22)

Dwyer Mfg. Co., F. W., P. O. Box 373, Michigan City, Ind. TRiangle 2-5574

Dychro Corporation, 49 Walnut Street, Wellesley 81, Mass. CEdar 7-0606

Dymec, A Division of Hewlett-Packard Co., 395 Page Mill Rd., Palo Alto, Calif. DA 6-1755

Dyna-Empire, Inc., 1075 Stewart Ave., Garden City, N. Y. Pioneer 1-2700
(See advertisement on page 113)

REPRESENTATIVES

Los Angeles, California

E. V. Roberts & Associates (Dave Wilkinson)
5068 W. Washington Blvd. WEbster 8-2541

Aurora, Illinois

Dwight Smith & Associates (Dwight Smith)
9 South River St., TWinbrook 7-5752

Madison Heights, Michigan

The Lowell Company (Bud Ryers)
1322 Elliot., LIncoln 7-5371

East Brunswick, New Jersey

R. E. Weber Company (Dick Weber)
10 Moline Rd., CLifford 7-5243

Rochester, New York

Marsey Sales, Inc. (Joe Marsey)
529 Merchants Rd., HU-2-4133

Dallas, Texas

Southwestern Engrg. Equipt. Co. (Fred Harmon)
4045 Lemmon Ave., LAkeside 6-7433

Dynage, Inc., 390 Capitol Avenue, Hartford, Connecticut CH 9-5654
(See advertisement on pages 118, 119)

Dynair Electronics, Inc., 7564 Broadway, Lemon Grove, Calif. HOpkins 6-4167

Dynamatic Div., Eaton Mfg. Co., 3122 14th Ave., Kenosha. Wis. OL 7-6171

Dynametrics Corp., Northwest Indsutrial Park, Burlington, Mass. BRowning 2-1600

Dynamic Air Engineering, Inc., 7412 Main Ave., Los Angeles 1, Calif., Lu 8-3292

Dynamic Controls Company, 2225 Massachusetts Ave., Cambridge 40, Mass. TR-6-3700

Dynamic Gear Co. Inc., 175 Dixon Ave.; Amityville, L. I., N. Y. AM 4-4788

Dynamic Instrument Co., Inc., 42 Carleton St., Cambridge 42, Mass. UN 4-7260

Dynamic Instrument Corp., 59 New York Ave., Westbury, L. I., N. Y. EDgewood 3-1600

Dynamic System Electronics Corp., 2001 North Scottsdale Rd., Scottsdale, Ariz., WH 6-0562

Dynamics Instrumentation Co., 583 Monterey Pass Road, Monterey Park, Calif., CUmberland 3-7773

Rep—North N. J., N. Y., New Engand
Instrument Sales Corporation
Hartsdale, N. Y.
SCarsdale 5-0800

Dynamics Research Corp., 38 Montval Ave., Stoneham 801, Mass., Stoneham 6-3900

Dynapar Corp., 5150 Church St., Skokie, Ill. ORchard 4-6655

Dynasonics Corporation 200 Michael Drive Syosset, N. Y.

Dynatran Electronics Corp., 178 Herricks Road, Mineola, N. Y. PIoneer 1-4141

Dynatronics, Inc., P. O. Box 2566, Hiway 17-92 North, Orlando, Fla., MIdway 7-5200

Dyneers, P. O. Box 58, Chatham, N. J.

Dynex Inc., 777 Dynex Dr., Pewaukee, Wisc., 691-0300

Dynisco, Div. of American Brake Shoe Co., 42 Carleton St., Cambridge 39, Mass. UNiversity 4-7260
(See advertisement on page 49)

REPRESENTATIVES

CALIFORNIA, La Canada

H. W. Ruby & Associates
P. O. Box 63 (1041 Foothill Blvd.)
Tel: MUrray 1-5845 TWX: PASA CAL 7447
(Terr. - Calif., Hawaii, Nev.)

FLORIDA, Orlando

Bohman Proctor Company
601 North Fern Creek Ave. - Suite 112
Tel: GArden 5-6860 & 4-2238 TWX: OR 7114
(Terr. - Florida)

MASSACHUSETTS, Needham 92

Dana G. Doherty Company
1253 Highland Ave.
Tel: HIllcrest 4-8280
(Terr. - Conn., Maine, Mass., N. H., R. I., Vt.)

MISSOURI, Kansas City 14

Leemark Associates, Inc.
P. O. Box 8467
Tel: NIagara 2-3313
(Terr. - Kansas, Mo., Neb., Ill. (Southern)

NEW YORK, Syracuse 7

E. W. Stone Company, Inc.
308 Merritt Avenue
Tel: HOward 9-3825
(Terr. - Upstate New York)

OHIO, Cleveland 18

The Tiby Co.
2245 Warrensville Center Road
Tel: ERieview 1-5335
(Terr. - Mich., Ohio, W. Pa., No. W. Va.)

PENNSYLVANIA, Glenside

Polymetric Devices Co.
P. O. Box 236 (130 Easton Road)
Tel: TUrner 7-9610
(Terr. - Dela., Md., So. N. J., East Pa., Va., D. C.)

TEXAS, Dallas

Kemp Engineering
P. O. Box 13251 (2618 Manana Drive)
Tel: FLeetwood 7-6663 TWX: DL 676
(Terr. - Ala., Ark., Ga., La., Miss., Okla., Tenn., Texas)

UTAH, Salt Lake City 11

Applied Engineering Products Co.
405 Felt Building
Tel: EMpire 4-4942 TWX: SU 161
(Terr. - Colo., Idaho, N. Mex., Utah)

WASHINGTON, Bellevue

S. L. Cane Co. 2413 - 160th Northeast
(Terr. - Oregon, Washington)

Dyronics Company, P. O. Box 3676, Columbus 14, Ohio AM-3-0890

E

E-H Research Laboratories, Inc., 163 Adeline Street, Oakland 20, Calif. TEmplebar 4-3030

EMP Electronics Research Laboratories, Inc., P. O. Box 2346 Phoenix, Ariz. ALpine 8-2462

ERDCO Engineering Corp., 136 Official Rd., Addison, Ill., KIngswood 3-6733

ESC Electronics Corp., 534 Bergen Blvd., Palisades Park, N. J. WIndsor 7-0400

E-T-A Products Co. of America, 6284 No. Cicero Ave., Chicago 46, Ill. KIldare 5-1553

ETC Incorporated, 990 E. 67th Street, Cleveland 3, Ohio EN-1-3144

E & W Optical Co., 2420 E. Hennepin, Ave. Minneapolis 13, Minn. FR 1-9864

Eagle-Picher Co., American Building, Cincinnati 1, Ohio, PArkway 1-7010

Eagle Signal Co., Div. The Gamewell Co., 202 20th St., Moline, Ill. Moline 2-5571

Eastern Air Devices, Inc., 385 Central Ave., Dover, N. H.

Eastern Industries, Inc., 100 Skiff St., Hamden 14, Conn. CH 8-3841

Eastern Reproductions Corp., 1250 Main St., Waltham 54, Mass. TW 3-8166

Eastern Specialty Co., 3617 No. 8th St., Philadelphia 40, Pa. BAldwin 8-0500

Eastern Technical Associates, Inc., Main St., N. Acton, Mass. CO-3-7719

Eastman Kodak Co., 343 State St., Rochester 4, N. Y. LO 2-6000

Eberline Instrument Corp., 805 Early, St. or P. O. Box 279, Santa Fe, N. Mex. YUcca 21881

Ebert Electronics Corp., 212-26 Jamaica Ave., Queens Village 28, N. Y. SPruce 6-1800

Eckel Valve Co., 1425 First, San Fernando, Calif., EMpire 1-6251

Eclipse Fuel Engineering Co., Combustion Div., 1100 Buchanan St., Rockford, Ill. WOodland 8-3751

Edal Industries, Inc., 4 Short Beach Rd., East Haven 12, Conn. HO-72591
(See advertisement on page 119)

Edcliff Instruments, 1711 So. Mountain Ave., Monrovis, Calif., ELliott 8-4571 or MUrray 1-5671

Eder Engineering Co., Inc. 1568 S. 1st St., Milwaukee 4, Wis. EVergreen 3-3900

Eder Instrument Co. Inc., 2293 N. Clybourn Ave., Chicago 14, Ill. EAstgate 7-2131
(See advertisement on page 143)

Edgerton, Germeshausen & Grier, Inc., 160 Brookline Ave., Boston 25, Mass. COpley 7-9700

Edison Industries, T. A., Instrument Div., McGraw Edison Co., 100 Lakeside Ave., W. Orange, N. J. ORange 3-6800

Editape Company, 32 Central Parkway, Huntington, L. I., N. Y., HAmilton 1-0929

Edmund Scientific Co., 101 E. Gloucester Pk., Barrington, N. J. LIncoln 7-3488

Edroy Products Co., 480 Lexington Ave., New York 17, N. Y. YUkon 6-4477

Edward Valves, Inc., Sub. of Rockwell Mfg. Co., 1200 W. 145th St., East Chicago, Ind. EXport 7-3231

Edwards Co., Inc., 90 Connecticut Ave., Norwalk, Conn. TEmple 8-8441

Efcon, Inc., Subsidiary of General Instrument Corp. Patterson Place, Roosevelt Field, Garden City, N. Y. PIoneer 1-4200

EIco, see Electronic Instrument Co., Inc.

Eicor Div. of The Scranton Corp., 4059 W. North Ave., Chicago 39, Ill. HUmboldt 6-2060

Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, Calif. LYtell 1-1451

El Products Corp., P. O. Box 41, New York 63, N. Y. KI-8-3948
(See advertisement at right)

Elasco, Inc., 5 Prescott St., Roxbury 19, Mass. HIghlands 2-1600

Elastic Stop Nut Corp of Amer., 1027 Newark Ave., Elizabeth, N. J., El 2-2900

Elco Corp., "M" St. below Erie Ave., Philadelphia 24, Pa.

Elcor, Inc., 1225 W. Broad St., Falls Church, Va. JEfferson 2-8850

Eldorado Electronics, 2821—10th Street, Berkeley 10, Calif. TH-1-4613

Electra Manufacturing Co., 4051 Broadway, Kansas City 11, Mo., WEstport 1-6864

Electric Autolite Co., Champlain St., Toledo 1, Ohio CHerry 3-3131

Electric Design & Mfg. Co., 8th & Jefferson, Burlington, Iowa. PLaza 2-7685

Electric Eye Equipment Co., 1938 E. Fairchild St., Danville, Ill. Telephone 6-6500

Electric Hotpack Co., Inc., 5053 Cottman St., Philadelphia 35, Pa. DE 3-1700

Electric Indicator Co. Inc., Camp Avenue, Stamford, Conn. DAvis 2-1671

Electric Motors & Specialties, Inc., King & Hamsher St., Garrett, Ind., FL 7-4141

Electric Regulator Corp., Pearl Street, Norwalk, Conn. VIctor 7-2401

Electric Soldering Iron Co., Inc., West Elm St., Deep River, Conn., LAmbert 6-5361

Electric Tachometer Corp., 68th & Upland Sts., Philadelphia 42, Pa. SAratoga 6-7723

Electrical Industries Div., Philips Electronics, Inc., 691 Central Ave., Murray Hill, N. J. CRestview 7-4300

Electrical Windings, Inc., 2015 No. Kolmar Ave., Chicago 39, Ill. BElmont 5-3360

Electro Chemical Co., 230 E. 127th St., New York 35, N. Y., LEhigh 4-4828

Electro Development Co., 14701 Keswick St., Van Nuys, Calif. STate 6-3660 TRiangle 3-1850
(See advertisement on page 182)

Electro Devices Inc., 580 Main St., Wilmington, Mass. PArkview 9-2851

Electro Devices, Inc., 4648 Easton Ave., St. Louis 13, Mo., JEfferson 1-2075

Electro Engineering Works, 401 Preda Street, San Leandro, Calif. LOckhaven 9-3326

Electro Impulse Lab., Inc., 208 River Street, Red Bank, N. J. SH-1-0404

Electro Instruments, Inc., 8611 Balboa Ave., San Diego 11, Calif. BRowning 7-6590

Electro Metric Co., 661 19th Street, Manhattan Beach, Calif. FRontier 4-7059

Electro Networks, Inc., 1920 Park Street, Syracuse 8, N. Y. GRanite 1-9193

Electro Powerpacs, Inc., 5 Hadley St., Cambridge 40, Mass. TRowbridge 6-9220

Electro Precision Corp., P. O. Box 669, Arkadelphia, Ark. CHapel 6-2272

Electro Products Laboratories, Inc., Transducer Div., 4501 N. Ravenswood Ave., Power Supply Div., 4551 N. Ravenswood Ave., Chicago 40, Ill. LOngbeach 1-1707

Electro-Rack Inc., 11501 Jefferson Blvd., Culver City, Calif., UPton 0-5744

Electro Radiation, Inc., 2200 Colorado Ave., Santa Monica, Calif. UPton 0-9674

Electro-Seal Corp., 946 N. Ave., Des Plaines, Ill., VA 4-0047

Electro Scientific Industries, Inc., 7524 S. W. Macadam, Portland 19, Ore., CHerry 6-3331

Electro Switch Corp., King Avenue, Weymouth 88, Mass. EDgewater 5-5200

Electro Switch Corp., Slip Ring Div., Main St., Osterville, Mass., Garden 8-6986
(See advertisement on page 184)

Electro Tec Corp., 10 Romanelli Ave., South Hackensack, N. J., HUbbard 7-4940

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Electrodynamic Instrument Corp., 1841 Old Spanish Trail, Houston 25, Texas JA-6-3761

Electro-Flex Heat, Inc., 83 Woodbine St., Hartford 6, Conn. CHapel 6-5413

Electroid Corporation, P. O. Box 442, 95 Progress Street, Union, N. J. MU-6-8290-91

Electro-Logic Corp., 515 Boccaccio Ave., Venice, Calif. EXbrook 6-3137

Electromath Corp., 115 Pleasant Ave., Roosevelt, Long Island, N. Y. MAyfair 3-3500

Electromation Co., 4254 Glencoe Ave., Venice, Calif., EXmont 8-5776

Electro-Mec Div. of Waltham Precision Instr. Co. Inc. 47-51 33rd St., Long Island City 1, N. Y. STillwell 6-3402

Electro-Mechanical Instrument Co., 8th and Chestnut Sts., Perkasie, Pa., ALpine 7-6561

Electro-Mechanical Research, Inc., P. O. Box 3041, Sarasota, Fla. RIngling 6-1148

Electro-Mechano Co., 261 Erie St., Milwaukee 2, Wis. BR-2-4050

Electro-Medical Laboratory, Inc., So. Woodstock 7, Vt. WOodstock 340

Electro-Miniatures Corp., 600 Huyler St., So. Hackensack, N. J. HUbbard 9-7770

Electron Arc Division, Ionics, Incorporated 244 Broad St., Lynn, Mass.

Electronic Applications, Inc., 194 Richmond Hill Ave., Stamford, Conn. DA 5-1574

Electronic Associates, Inc., Long Branch, N. J. CApital 9-1100

Electronic Communications, Inc., 1501-72nd St., North, St. Petersburg 10, Fla. DI-5-9301

Electronic Computer Co., 618 Maple St., Conshohocken, Pa. TAylor 8-3967

Electronic Control Corp., 15341 Dale Detroit 23, Mich. TEmple 26625

Electronic Controls Inc., 86 Magee Ave., Stamford, Conn. DAvis 5-3524

Electronic Counters, Inc., 155 Eileen Way, Syosset, L. I., N. Y., WAlnut 1-5000

Electronic Development Corp., 423 W. Broadway, Boston 27, Mass. ANdrew 8-3534

Electronic Engineering Co. of California, 1601 East Chestnut Ave., Santa Ana, Calif. KImberly 7-5501

Electronic Heat Treating & Mfg., Inc., 181 N. Getty St., Muskegon, Mich. PA-2-3249

Electronic Industries, Inc. Conn. TEmple 8-7551 18 Marshall St. South Norwalk, Conn.

Electronic Instrument Co., 3300 Northern Blvd., Long Island City 1, N. Y. STillwell 6-8700

Electronic Measurements Co., Inc., Lewis St. & Maple Ave., Eatontown, N. J. LIberty 2-0300

Electronic Measurements Corp., 625 Broadway, New York 12, N. Y. GRamecy 5-0610

Electronic Parts Mfg. Co., Inc., 508-10- 25th St., Union City, N. J. UN. 5-4028

Electronic Processes Corp. of Calif., 436 Bryant St., San Francisco 7, Calif. EXbrook 7-3881

Electronic Production & Development, Inc., 501 N. Prairie Ave., Hawthorne, Calif., ORegon 8-7 642

Electronic Products Corp., 4642 Belair Rd., Baltimore 6, Md., HAmilton 6-1268 or TWX BA: 203-U

Electronic Rectifiers, Inc., 2102 Spann Ave., Indianapolis 3, Ind., ME 1-9566

Electronic Seals Co., Inc., 13766 Saticoy St., Van Nuys, Calif., STate 1-0540 or TRiangle 3-4982

Electronic Specialty Co., 5121 San Fernando Rd., Los Angeles 39, Calif., CHapman 5-3771

Electronic Transistors Corp., 9226 Hudson Blvd., N. Bergen, N. J., UNion 9-2100

Electronic Tube Corp., 1200 E. Mermaid Lane, Philadelphia 18, Pa. CHestnut Hill 7-6800

Electronics International, see Elin Div.

Electrons, Inc., 127 Sussex Ave., Newark 3, N. J. HU. 2-5977

Electro-Optical Instruments, Inc., 2612 East Foothill Blvd., Pasadena, Calif. SYcamore 6-3405

REPRESENTATIVES

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Saunders & Company
8 Prospect Street, Waltham 54, Mass.
TW-46071

UPSTATE NEW YORK
Saunders & Company
Box 362
North Syracuse, New York

Electropac, Inc., 62 Union Ave., Petersborough, N. H.

Electrosnap, see Control Switch Div.

Electrosolids Corp., 6352 Bellingham Road, North Hollywood, Calif. TRiangle 7-5587

Electrospace Corp., 99 Hawthorne Ave., Valley Stream, N. Y., VA 5-6363

Electrovert, Inc., 124 E. 40th St., New York 16, N. Y. OXford 7-8396

Electro-Voice, Inc., Cecil & Caroll Sts., Buchanan, Mich., OXbow 5-6831

Elgin National Watch Co., Abrasives Div., 107 National St. Elgin, Ill. SHerwood 2-3300

Elgin National Watch Co., Electronics Div. 2435 N. Naomi St., Burbank, Calif. VIctoria 9-1446

Elin Division, International Electronic Research Corp., 135 W. Magnolia Blvd., Burbank, Calif., VIctoria 9-2481

Elion Instruments, Inc., 430 Buckley St., Bristol, Pa. WI-9-2700

Ellis Associates, 67 Lincoln Ave., Pelham, N. Y. PElham 8-3360
(See advertisement on page 58)

Ellison Draft Gage Co., 548 W. Monroe St., Chicago 6, Ill. RAndolph 6-2296

Pittsburgh and Buffalo Representatives
M. S. Jacobs & Associates, Inc.
810 Noblestown Rd., Pittsburgh 5. WAlnut 2-4212
1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229

Ellison Engineering Co., 4530 San Fernando Rd. Glendale 4, Calif., CH 5-8684

Elotec Corp., 1425 No. Lidcombe, El Monte, Calif., GIlbert 3-6121

Embree Electronics Corp., 993 Farmington Ave., West Hartford 7, Conn., ADams 2-5144

Emcor-Ingersoll Products Div., Borg-Warner Corp., 630 Congdon Ave., Elgin, Ill. SHerwood 1-3490

Emerson Apparatus Co., 175 Tremont Street, Melrose 76, Mass. NOrmandy 5-2445

Emery Co., A. H., Pine St., New Canaan, Conn. WO-6-9595
(See advertisement on page 86)

Empire Devices, Inc., 37 Prospect St. Amsterdam N. Y., VIctor 2-8400

Empire Products Inc., Cam-Lok Div., 9213 Blue Ash Rd., Cincinnati 42, Ohio, SYcamore 1-5420

Empire State Laboratories, Inc., 2608 Merrick Road, Bellmore, N. Y. SUnset 5-4888

Empro Manufacturing Co., 9143 Pendleton Pike, P. O. Box 26064, Lawrence 26, Ind. LIberty 6-6451
(See advertisement on page 122)

Endevco Corporation, 161 East California Blvd., Pasadena, Calif. SYcamore 5-0271

Energy Kontrols, Inc., 11 So. First St., Geneva, Ill. GEneva 7150

Engelhard Industries, Inc., 113 Astor St., Newark, N. J. BIgelow 2-2700

Engineered Electronics Co., 1441 East Chestnut Ave., Santa Ana, Calif. KImberly 7-5651

Engineered Magnetics, 13041 Cerise Ave., Hawthorne, Calif. OR-8-7607

Engis Equipment Co., 431 S. Dearborn St., Chicago 5, Ill. HArrison 7-3223

Engler Instrument Co., 250 Culver Ave., Jersey City 5, N. J., HEnderson 4-6500

Entron, Inc., P. O. Box 287, Bladensburg, Md. APpleton 7-9585

Enviro Equipment Corp., 369 Linden St., Brooklyn 27, N. Y., VAndyke 1-9872

Environmental Equipment Corp., 369 Linden St., Brooklyn #27, N. Y. VAndyke 1-9872

Epic, Inc., 150 Nassau St., New York 38, N. Y., DIgby 9-2470
(See advertisement on page 58)

Eppley Laboratory, Inc., 12 Sheffield Ave., Newport, R. I., VIking 7-1020
(See advertisement on Inside Front Cover, and 122)

Epsco, Inc., 275 Massachusetts Inc., Cambridge, Mass.

Epsco-West, Div. of Epsco, Inc., 240 E. Palais Rd., Anaheim, Calif., PR 2-1000

Erb & Gray Scientific, Inc., 854 S. Figueroa St., Los Angeles 17, Calif., MAdison 7-4401

Ercona Corp., 16 West 46 Street, New York 36, N. Y. CIrcle 5-3840

Erdco Engineering Corp., 136 Official Road, Addison, Ill. KIngswood 3-6733

Erie Manufacturing Co., 4000 South 13th St., Milwaukee 21, Wisc.

Erie Pacific, Div. of Erie Resistor Corp., 12932 S. Weber Way, Hawthorne, Calif. ORegon 8-5418

Erie Resistor Corp., 644 W. 12th St., Erie 6, Pa. GLendale 6-8592

Eriez Manufacturing Co., 118 Magnet Drive, Erie, 6 Pa. GLendale 6-2041

Ertel Engineering Corp., Kingston 60, N. Y.

Erwood Inc., 1770 W. Berteau Ave., Chicago 13, Ill. BI 8-0622

Escon, Incorporated—Subsidiary of Glass-Tite Industries, 725 Branch Ave., Providence, R. I. TEmple 1-6800

Essex Electronics, Div. Nytronics, Inc., 550 Springfield Ave., Berkley Heights, CRestview 3-9300

Essex Wire Corp., 1601 Wall Street, Fort Wayne, Ind. EAstbrook 0311

Esterbrook Pen Co., Delaware Ave. & Cooper St. Camden 1, N. J.

Esterline-Angus Co., Dept. G, P. O. Box 596, Indianapolis 6, Ind. CHapel 4-3318
(See advertisement on page 97)

BRANCH OFFICES

Boston
731 Main St., Waltham 54, Mass.
TWinbrook 9-1630

New York
Bldg. 2, Port St., Newark Airport, Newark, N. J.
MItchell 3-4484

Philadelphia
130 S. Easton Rd., Glenside, Pa.
WAverly 4-6300

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Amarillo, Texas
C. B. Anderson Electric Co. (E. Forester)
P. O. Box 1836. DRake 6-6443

Atlanta 19, Georgia
The Gearhart Company
The Gearhart Bldg. Tel: 233-4431

Birmingham 5, Alabama
The Gearhardt Company (J. K. Spader)
512 North 18th St. ALpine 2-7419

Buffalo 17, New York
The Robert F. Lamb Co.
3407 Delaware Ave., TR-6-3757

Calgary, Alberta, Canada
George M. Fraser, Ltd. (R. J. Showalter)
815—25th Ave., N.W. AVenue 9-7897

Charlotte 2, North Carolina
Ranson, Wallace & Co.
116½ East Fourth St. EDison 4-4244

Chicago 5, Illinois
Murphy & Dickey
537 S. Dearborn St. HArrison 7-7953

Cincinnati 6, Ohio
G. H. Armstrong Co.
Hotel Alms Bldg., Suite 250. UNiversity 1-6429

Cleveland 15, Ohio
The L. H. Waldrip Company
3030 Euclid Ave. EXpress 1-4242

Dallas 20, Texas
Kemp Engineering Co.
P. O. Box 13251. FLeetwood 7-6663

Denver 2, Colorado
Mountain States Machinery Company
1526 Blake St. CHerry 4-7421

Des Moines 9, Iowa
Deco Engineering Products
1112 Locust St., ATlantic 8-5721

Detroit 27, Michigan
E. B. Anderson Company
12810 Puritan Ave. UNiversity 2-7705

Houston 19, Texas
The Eads Company
P. O. Box 13071. JAckson 6-1646

Indianapolis 2, Ind.
C. D. Arnold
2123 N. Meridian St. WAlnut 5-7561

Kansas City, Missouri
C. B. Fall Company (C. C. Crowe)
11201 Longview Road. Hickman Mills 34, Mo.
SOuth 1-6545

Knoxville 17, Tenn.
Bowditch & Company
P. O. Box 3145. Tel: 524-2513

Los Angeles 46, California
Brenner-Fiedler & Associates, Inc.
7563 Melrose Ave. OLive 1-4300

Memphis, Tennessee
Janis Equipment Co.
4711 Poplar Ave. MUtual 3-1511

Milwaukee 12, Wis.
Morris F. Jacobs Co.
2218 North Third St., Suite 211. LOcust 2-5690

Minneapolis 3, Minn.
Pinkney & Hine Company
1925 Nicollet Ave. FEderal 8-0523

Montreal, Quebec, Canada
William Hobson & Associates
1024 Notre Dame St., Lachine MElrose 7-1231

New Orleans 25, Louisiana
Mid-South Sales Company
P. O. Box 13032. Tel: 822-3030

Oklahoma City 1, Okla.
C. B. Anderson Electric Co. (A. N. Dansereau)
P. O. Box 761. VIctor 3-7718

(CONTINUED ON PAGE 218)

Omaha 1, Nebraska
Deco Engineering Products (Charles J. Leppert)
P. O. Box 1541. Tel: 558-1187

Orlando, Florida
The Gearhart Company (Don Grantz)
2513 Catalina Drive, GArden 2-8024

Phoenix 1, Arizona
J. E. Redmond Supply Co.
P. O. Box 869. ALpine 8-4551

Pittsburgh 16, Pa.
W. H. Bollinger
P. O. Box 8088. LOcust 1-2340

Portland 14, Oregon
Shaffer & Nelson, Inc.
1001 S. E. Water Ave., BEImont 4-7437

St. Louis 1, Missouri
C. B. Fall Company
317 N. 11th St., Suite 1003. CHestnut 1-2433

Salt Lake City 15, Utah
Shaffer & Nelson, Inc. (Paul R. Hansen)
1415 S. Main St., Rm. 201. HUnter 4-3382

San Francisco, Calif.
The T. R. Routh Co.
P. O. Box 1056, Burlingame
DIamond 2-4147

Seattle 4, Washington
Shaffer & Nelson, Inc.
1940 Occidental Ave. MUtual 2-0186

Spokane 10, Washington
Shaffer & Nelson, Inc. (Philo O. Smith)
P. O. Box 198, West 1835 Broadway.
FAirfax 7-9528

Syracuse, N. Y.
J. F. Wulfetange, Jr.
4505 E. Genesee St. DeWitt 14
GIbson 6-3330

Toronto 7, Ontario, Canada
George M. Fraser, Ltd.
1554 Yonge St. WAlnut 4-9492

Tulsa, Oklahoma
C. B. Anderson Electric Company
P. O. Box 676. TEmple 6-4661

Washington, D. C.
The Hildenbrand Company
P. O. Box 1060. Fairfax, Virginia
CRescent 3-2334

Etching Corp. of Calif., 865 Hinckley Rd., Burlingame Calif. OXford 7-7771

Euclid Electric & Mfg. Co., 50 Edwards St., Madison, Ohio, HAzel 8-5311

Eugene Engineering Co., Inc., 1217 Hyde Park Ave., Boston, 36, Mass. EMpire 1-7000

Ever Ready Thermometer Co., 116 Wooster St., New York 12, N. Y. CAnal 6-4595

Ewald Instruments, Box 124 B, Kent, Conn. WAlker 7-3278
(See advertisement below)

MINIATURE WELDERS

- Precision Bench Welding Heads
- Power Plants
- Portable Thermocouple Tacker
- NEW: Subminiature Precision Head WHD 5A and inexpensive, small Stored Energy Power Supply.

Submit parts for free sample welds and ask for data sheet.

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Exact Electronics Inc., 455 Second St., Hillsboro, Ore., MIdway 8-3590

Exact Weight Scale Co., 551 East Town St., Columbus 15, Ohio. CA 4-6187

Exactel Instrument Co., 185 Evelyn Ave., Mountain View, Calif. YOrkshire 8-6558
(See advertisement on pages 40, 41)

Excellex Electronics Inc., 88-06 Van Wyck Expressway, Jamaica 18, N. Y. AXtel 1-3585

Executone Inc., 47-37 Austell Place, Long Island City 1, N. Y., RA 9-7031

Exline Engineering Co., 107 W. 2nd., Tulsa 3, Okla. GIbson 7-4481

F

FAE Instrument Corp., 16 Norden Lane, STillwell 6-4959 Huntington Station, L. I., New York

FXR, A Div of Amphenol—Borg Electronics 25-26 50th St., Woodside 77, N. Y. RAvenswood 1-9000 NY-4-3745

Fafnir Bearing Co., 37 Booth St., New Britain, Conn. BAldwin 5-5151

Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill., HArrison 7-7100. Electronics Div., 505 Oakwood Ave., West Hartford, Conn., ADams 6-5431

Fairchild Camera & Instrument Corp., Robbins Lane, Syosset, N. Y. WEIls 1-4500

Fairchild Controls Corp., Components Div., 225 Park Ave., Hicksville, L. I., N. Y. WEIls 8-5600

Fairchild Semiconductor Corp., 545 Whisman Rd., Mountain View, Calif. YOrkshire 8-8161

Fairfield Controls, Inc. 114 Manhattan St., Stamford, Conn.

Falcon Alarm Co., Inc., 243 Broad St., Summit, N. J. CRestview 3-5640

Falcon Div., General Thermodynamics Corp., 211 Concord Turnpike, Cambridge 40, Mass., TRowbridge 6-3269

Falstrom Company, Falstrom Court, Passaic, N. J. PR 7-0013

Fansteel Metallurgical Corp., 2200 N. Sheridan Rd., North Chicago, Ill., DExter 6-4900

Farmer Electric Products Co., Inc., 2300 Washington St., Newton Lower Falls 62, Mass. DEcatur 2-8383
(See advertisement on page 175)

Farrand Controls, Inc., 99 Wall St., Valhalla, N. Y., RO 1-2600

Farris Engineering Corp., 400 Commercial Ave., Palisades Park, N. J. WIndsor 4-6300

Rep—Pittsburgh, Pa., Charleston, W. Va.
Fogleman Co., Inc.
3849 Willow Ave., Pittsburgh 34, Pa. LE-1-4005
510 "C" St., S. Charleston 3, W. Va. RI-4-8401

Fasco Industries Inc., 255 N. Union St., Rochester 2, N. Y., HA 6-1800

Fast & Co., John E., subsidiary of the Victoreen Instrument Co., 3580 N. Elston Ave., Chicago 18, Ill.

Fawley-Brost Co., 111 North Wacker Drive, Chicago 6, Ill. FI-6-0777

Fecker, J. W. Division American Optical Co., 6592 Hamilton Ave., Pittsburgh 6, Pa. EMerson 1-7617

Federal Pacific Electric Co., 50 Paris St., Newark 1, N. J.

Federal Products Corp., 1144 Eddy St., Providence 1, R. I. ST 1-9300

Federal Screw Products Inc., 3917 N. Kedzie Ave., Chicago 18, Ill. IRving 8-5744
(See advertisement on page 194)

Federal Shock Mount Corp., Div. of Korfund Co., Inc., 1060 Washington Ave., New York 56, N. Y. WY 3-0400

Federal Tool Engineering Co., 1[illegible]84 Pompton Ave., Cedar Grove, N. J. CLifford 6-5300

Federated Electronics Inc., 134-20 Jamaica Ave., Jamaica 18, N. Y. OL 8-3369

FEDTRO Inc., Federal Electronic Sales Div., Federal Electronics Bldg., Rockville Centre, L. I., N. Y. RO 6-1435

Feedback Controls, Inc., 8 Erie Drive, Natick, Mass. OLympic 3-3441

Feiler Engrg. & Mfg. Co., 9510 No. Lawler, Skokie, Ill. COrnelia 7-8280

Fellows Gear Shaper Co., 78 River St., Springfield, Vt. TUrner 5-2131

Felsenthal & Sons, Inc., G., 3500 North Kedzie Ave., Chicago 18, Ill. KEystone 9-6661

Femco, Inc., P. O. Box 32, Irwin, Pa. UNderhill 3-3200

Fenwal Inc., 3610 Pleasant St., Ashland, Mass. TRinity 5-6111

Fenwal Electronics, Inc., 63 Fountain St., Framingham, Mass. TR-2-5110
(See advertisement on page 187)

Ferance Construction Co., 28 Woodside Dr., Penfield, **ham, Mass. TR-2-5110**

Ferguson Company, 814 Ridgely St., Baltimore 30, Md. LExington 9-5202

Ferguson Hille & Assoc. Inc., 542 S. Dearborn St. Chicago 5, Ill. WA 2-1808

Ferranti Electric, Inc., 95 Madison Ave., Hampstead, N. Y. IVanhoe 3-8244

Ferrotec Inc., 217 California St., Newton 58, Mass. DEcatur 2-2600

Fidelitone, Incorporated, 6415 North Ravenswood, Chicago 26, Ill. BR-4-0075

Fidelity Instrument Corp., 1000 E. Boundary Ave., York, Pa., 37884

Fielden Electronics Co., Huntington, L. I., N. Y.
(See advertisement on pages 38, 65)

Film Capacitors, Inc., 3400 Park Ave., New York 56, N. Y. CYpress 2-5180

Film Resistors, Inc., 242 Ridgedale Ave., P. O. Box 49, Morristown, N. J., JEfferson 8-2440,1

Filmohm Corporation, 48 West 25th St., New York 10, N. Y. WAtkins 4-6605

Filtors, Inc., 30 Sagaomore Hill Drive, Port Washington N. Y. Port Washington 7-8220

Filtron Company, Inc., 131-15 Fowler Ave., Flushing 55, N. Y. HIckory 5-7000

Fineisen Co., A. R., 548 Piermont Ave., Hillsdale, N. J.

Finescale Co., 218 S. Western Ave., Los Angeles 4, Calif., DU 5-6834

Fischer & Porter Co., 775 Warminster Rd. Warminster, Pa. OSborne 5-6000
(See advertisement on page 14)

Fisher Co., Inc., Oscar., P. O. Box 426, Newburgh, N. Y. NEwburgh 2-3900

Fisher Governor Co., Box 307, Marshalltown, Iowa. Telephone 5561

Fisher Scientific Co., 711 Forbes Ave., Pittsburgh 19, Pa. EXpress 1-1330

Fish-Schurman Corp., 70 Portman Road, New Rochelle, N. Y. NE 6-1300
(See advertisement on page 164)

Fleetwood Laboratories, Inc., 35 Rockwood Place New Rochelle, N. Y. BEverly 5-0831

Flexaust Co., 100 Park Ave., New York 17, N. Y. ORegon 9-1300

Flexonics Corp., Subsidiary of Calomet & Hecla, Inc., 450 E. Devon Ave. Bartlett, Ill., TEnnyson 7-1811

Flight Components, 2035 Calumet Street, Clearwater, Florida Telephone 30 6801

Flodar Corp., 16911 St. Clair Ave., Cleveland 10, Ohio. IV-6-2200

Flo-Tronics, Inc., Electronic Controls Div., 1330 Quincy St., Minneapolis 13, Minn. FEderal 5-7789

Flow Corp., 85 Mystic St., Arlington 74, Mass. MIssion 8-6740

Flow Measurements Corp., 10506 Wheatley St., Kensington, Md. LO 4-0122

Flow Systems Inc., 842 Production Place, Newport Beach, Calif., MI 6-8861

Flow-Actuated Control Co., 21 Park Row, New York 38, N. Y. DIgby 9-3288

Fluid Controls, Inc., Box 186, Mentor, Ohio BL-5-3426

Fluid Mechanisms Inc., 151 Marine St., Farmingdale, N. Y. MYrtle 4-3575

Fluid Power Accessories, Inc., 2051 Railroad Ave., Glenview, Ill., PA 4-9330

Fluidynamics, Inc., 1853 So. 8th Ave., Monrovia, Calif. HI-6-8471

Fluke Mfg. Co., Inc., John., 7100-220th SW. Mountlake Terrace, Wash. PR 6-1171

Foley Electronics Co., 2020 Eye St. N. Washington 6, D. C.

Fonda Gage Co., Inc., 200 Henry St., Stamford, Conn., Davis 4-5787

Food Technology, Inc., 5903 Northwest Hwy., Chicago 31, Ill. NEwcastle 1-4545

Forbes and Wagner, Inc., 345 Central Ave., Silver Creek, N. Y. YEllowstone 4-2691

Ford Instrument Company Div. of Sperry Rand Corp., 31-10 Thomson Ave., Long Island City 1, N. Y. STillwell 4-9000

Fork Standards, Inc., 1915 N. Harlem Ave., Chicago 35, Ill., ME 1-1805

Forma Scientific Inc., Box 649, Marietta, Ohio FRontier 3-4763

Formica Corp., Sub. of Cyanamid, 4614 Spring Grove Ave., Cincinnati 32 Ohio, KI 1-3670

Formweld Products Co., 1530 Colt Ave., East Cleveland 12, Ohio, LIberty 1-3100

Forro Scientific Co., 833 Lincoln St., Evanston, Ill. DA-8-5729

Foster Engineering Div. of General Controls Co., Warwick Industrial Park, Warwick, R. I. STuart 1-6200

Foxboro Co., Foxboro, Mass. CApitol 7-0866

Franklin Systems, P. O. Box 3250, West Palm Beach, Florida, TEmple 3-4602

Fredricks Co., The Philmont and Anne Streets Bethayres, Penna., WIlson 7-2500

Freed Transformer Co., Inc., 1718 Weirfield St., Brooklyn 27, N. Y. EVergreen 6-1300

Frequency Standards, Div. of Harvard Industries, Inc., P. O. Box 504, Asbury Park, N. J., PRospect 4-0500

Friden, Inc., 2350 Washington Ave., San Leandro, Calif.

Frontier Electronics Co., 4616 Memphis Ave., Cleveland 9, Ohio
(See advertisement on page 108)

Fugle-Miller Lab's. Inc., Clark, N. J. FUlton 1-2727

Fuller Co., 124 Bridge St., Catasauqua, Pa. COngress 4-2841

Fulton Sylphon Div., Robertshaw-Fulton Controls Co., P. O. Box 400, Knoxville 1, Tenn. Telephone 4-1641
(See advertisement on page 62)

Furnas Electric Co., 1000 McKee St., Batavia, Ill. TRemont 9-3410

Futurecraft Corporation, 1717 North Chico Ave., El Monte, Calif. CUmberland 3-2113

G

GPE Controls, Inc., 240 E. Ontario St., Chicago 11, Ill. WHitehall 4-3700

GPL Div., General Precision Inc., 63 Bedford Road, Pleasantville, N. Y. ROgers 9-5000

GPS Instrument Co., Inc., 180 Needham St., Newton 64, Mass. DEcatur 2-8110

GRS Corp., 9601 River St., Schiller Park, Ill. ORange 8-2727

G. S. Equipment Co., 15585 Brookpark Rd., Cleveland 35, Ohio CLearwater 2-4770

G-V Controls Inc., Okner Parkway, Livingston, N. J. WYman 2-6200

Gaertner Scientific Corp., 1208 Wrightwood Ave., Chicago 14, Ill.

Gagne Associates Inc., 50 Wall St., Binghamton, N. Y RA-3-7510

Galland-Henning Mfg. Co., 2753 S. 31st St., Milwaukee 46, Wis., MItchell 5-6000

Gallien & Son, R. P., 220 West Fifth Street, Los Angeles 13, Calif. MU-1347

Gamewell Company-A subsidiary of E. W. Bliss Co., 1238 Chestnut St., Newton Upper Falls 64, Mass. BIgelow 4-1240

Gap Instrument Corp., P. O. Box 147, Newton, Conn.

Gar Precision Parts, Inc., 190 Henry St., Stamford, Conn. FIreside 8-2671

Garde Mfg. Co., 53 John St., Cumberland, R. I. Pawtucket 6-4200

Gardner Laboratory Inc., 5521 Landy Lane., Bethesda 14, Md.

Garlock Electronic Products, Garlock Inc., Camden 1, N. J. WOodlawn 4-2212

Garlynn Engineering Co., 755 Pennsylvania Ave., San Francisco 7, Calif. MIssion 7-2113

Gas Drying, Inc., Box 56, Summit, N. J. CRestview 3-0623

Gas Purifying Materials Co., Inc., 3-15 26th Ave., Long Island City 2, N. Y. AStoria 8-1134

Gast Mfg. Corp., 2310 Hyway M-139 Benton Harbor, Mich. WAlnut 6-6171

Gates & Co., Geo. W., Hempstead Tpke. & Lucille Ave., Franklin Square, L. I., N. Y. FIeldstone 7-0787,-8,-9

Gates Electronic Co., 1705 Taylor Ave., Bronx 60, N. Y. TYrone 2-6490

Gates Radio Co., 123 Hampshire St., Quincy, Ill. BA 2-8202

Gatti, Inc., Aurele M., 527 Tindall Ave., Trenton 9 N. J. EXport 6-1577
(See advertisement on page 155)

Gaynes Engineering Co., 1642 W. Fulton St., Chicago 12, Ill. HA 1-5257

Gear Specialties, Inc., 2635 West Medill Ave., Chicago 47, Ill. Dickens 2-3200

Geier & Bluhm, Inc., 594 River St., Troy; N. Y. Area Code 518 AShley 2-6951
(See advertisement on page 152)

Gelber & Sons, S. Inc., 5806 N. Lincoln Ave., Chicago 45, Ill. LO 1-3787

Gelman Instrument Co., 106 N. Main St., Chelsea, Mich. GReenwood 9-4821
(See advertisement on page 128)

Gemco Electric Company, 25685 West Eight Mile Road, Detroit 40, Mich. KEnwood 3-0700

Gems Co., Inc., 85 Marleet Sq., Newington, Conn.

California Representative
Carkeek Engineering Co., Inc.
285 South Euclid Ave., Pasadena, Calif.
MUrray 1-0489

General Aniline & Film Corp., Ozalid Div., Ozalid Rd., Johnson City, N. Y., SWarthmore 7-2301

General Automatic Corp., 111-33rd St., Union City, N. J. UN-4-1867

General Binding Corporation, 1101 Skokie Highway, Northbrook, Ill CRestwood 2-3700

General Ceramics, Div. of Indiana General Corp., Keasbey, N. J. VAlley 6-5100

General Communication Company, 677 Beacon St., Boston, Mass. COpley 7-6030

General Computers, Inc., Dept. 9, 9000 West Pico Blvd., Los Angeles 35, Calif. BRadshaw 2-6010

General Controls Co., 801 Allen Ave., Glendale 1, Calif. VIctoria 9-2181

General Devices, Inc., P. O. Box 253, Princeton, N. J. DA 9-2323

General Dynamics Electronics 100 Carlson Road, Rochester 3, N. Y. HUbbard 2-2200

General Dynamics/Electronics, Information Tech. Div., 1895 Hancock St., San Diego, Calif.,

General Dynamics/Electronics Information Technology Division Instrument Department 3595 Frontier St., San Diego 10 Calif. AC-3-1614

General Electric Co., Schenectady 5, N. Y.
(See advertisement on pages 30-31, 90-91)

General Electric (GE) Co., Apparatus Sales Div., 1 River Road, Schenectady 5, N. Y. FRanklin 4-2211

General Electric (GE) Co., Capacitor Department, Irmo, S. C.

General Electric (GE) Co., Computer Dept., 2250 West Peoria Avenue Phoenix, Arizona WIndsor 3-2351

General Electric (GE) Co., General Purpose Control Dept., Bloomington, Ill.

General Electric (GE) Co., Heavy Military Electronics Dept., Court Street Plant, Syracuse, N. Y. GRanite 6-4411

General Electric (G.E.) Co., Instrument Div., 40 Federal St., West Lynn, Mass., LY 3-3400

General Electric (GE) Co., Laminated Products Dept., Coshocton, Ohio MA-2-5310

General Electric (GE) Co., Light Military Electronics Dept., French Rd., Utica, N. Y. SW-7-1000

General Electric (GE) Co., Magnetic Materials Section, Edmore, Mich. HA-7-5151

General Electric (GE) Co., Missile & Space Vehicle Dept., Lakeside Ave., Burlington, Vt. UNiversity 3-3411

General Electric (GE) Co., Power Tube Dept., 1 River Road, Bldg. 267, Schenectady 5, N. Y. Franklin 4-2211

General Electric (G.E.) Co., Semiconductor Prod. Dept. Kelley Bldg., Liverpool, N. Y. GRanite 6-4411

General Electric (GE) Co., Silicone Products Dept., Mechanicville Rd., Waterford, N. Y. ADams 8-3330

General Electric (GE) Co., Specialty Control Dept., Box 812 Waynesboro, Va.

General Electric (GE) Co., Voltage Regulator Product Section, 100 Woodlawn Ave., Pittsfield, Mass. HI-3-3511

General Electric (GE) Co., X-Ray Dept., 4855 Electric Ave., Milwaukee 1, Wis. EVergreen 3-3211

General-Electro Mecanical Corp., 785 Hertel Ave., Buffalo 7, N. Y. TR-6-9685

General Electrodynamics Corp., 4430 Forest Lane, Garland, Texas. BRoadway 6-1161

General Electronic Labs, Inc., 18 Ames St., Cambridge 42, Mass., UN 4-8500

General Industries Co., Olive and Taylor Sts., Elyria, Ohio FAirfax 3-3136

General Instrument Corp., Semiconductor Div. 65 Gouverneur St., Newark 4, N. J. HUmbolt 5-2100

General Instrument Corp., F. W. Sickles Div., 165 Front St., Chicopee, Mass., REpublic 3-6621

General Instrument Corp., Systematics Div., 3216 W. El Sequndo Blvd., Hawthorne, Calif., SP 2-2351 or OS 9-3377

General Kinetics Corp. 197 So. Van Brunt St. Englewood, N. J.

General Magnetics, Inc., 135 Bloomfield Ave., Bloomfield, N. J. PI 8-2400

General Meters, Inc., 287-27 Rd., Grand Vunction, Colo. CH 3-0954

General Microwave Corp., 47 Gazza Blvd., Farmingdale, N. Y. MYrtle 4-3434

General Nuclear Corp., 550 Fifth Ave., New York 19, N. Y. PLaza 7-3638

General Mills, Inc., Electronics Group 1620 Central Ave. N. E. Minneapolis 13, Minn. STerling 9-8811

General Photo Prods. Co., Inc., P. O. Box 23, Chatham, N. J. MErcury 5-5200

General RF Fittings, Inc., 702 Beacon St., Boston 15 Mass., KEnmore 6-2290

General Radio Co., 22 Baker Ave., West Concord, Mass. EMerson 9-4400

General Railway Signal Co., Rochester 2, N. Y. IDlewood 6-2020

General Regulator Corp., 666 5th Ave., New York 19, N. Y. JU 2-6600

General Resistance, Inc., 577 E. 156th St., Bronx 55, N. Y. CY-2-1500

General Thermoelectric Corp., P. O. Box 253, Princeton, N. J.

General Time Corp., Electronic Systems Div., 201 Summer St., Stamford, Conn. DAvis 5-2691
(See advertisement on page 95)

General Transistor Corp., 91-27 138th Place, Jamaica 35, N. Y. HI 1-1000

General Turbine Corp., 1338 West Ave., Buffalo 13, N. Y. ELmwood 7480

General Vacuum Corp., 81 Hicks Ave., Medford 55, Mass., EXport 5-8100

General Welding & Fab. Co., 1702 Peninsula Dr., Erie, Pa. TE-3-4389

Genesys Corp., see Information Systems

Genisco, Inc., 2233 Federal Ave., Los Angeles 64, Calif. BRadshaw 2-2706

Genisco Instrument Div., Genisco, Inc., 2209 Barry Ave., Los Angeles 64, Calif. GR 9-4331 Ext. 66

Geophysical Instrument Company, Inc., Manassas, Va.

Georator Corporation, 315 Tudor Lane, Manassas, Va. EMpire 8-2101

Geotechnical Corp., 3401 Shiloh Road, Garland, Texas. BRoadway 8-8102

Gerber Scientific Instrument Co., 89 Spruce St., Hartford 1, Conn. JAckson 8-2124

Gertsch Products, Inc., 3211 S. La Cienega Blvd. Los Angeles 16, Calif., UPton 0-2761

Giannini Controls Corp., 1600 South Mountain Ave., Doarte, Calif.

Gibson Electric Co., Box 540, Delmont, Pa. HOward 8-7701

Gillen Co., John, 2540 S. 50th Ave., Chicago 50, Ill., BI 2-1723
(See advertisement on page 198)

Gilmore Industries, 13015 Woodland Ave., Cleveland 20, Ohio. RA 1-6400

Gisholt Machine Co., 1245 East Washington Ave., Madison 10, Wis. ALpine 6-9081

Gits Bros. Mfg. Co., 1846 So. Kilbourn Ave., Chicago 23, Ill. LAwndale 1-3554

Glar-Ban Corporation, 254 Rand St. Buffalo, 7, N. Y. PArkside 9770

Glass Engineering Dept., Braun-Knight-Heimann, Co., 601 O'Neill Ave., Belmont, Calif., LY 3-8276

Glass Instruments, Inc., 2285 E. Foothill Blvd. Pasadena, Calif., MUrray 1-0011

Glassco Instrument Co., 777 So. Arroyo Pky., Pasadena, Calif. SY-5-3278

Glasseal Products Co., Inc., 725 Commerce Rd., Linden, N. J. HUnter 6-2067

Gleason-Avery, Inc., 45 Aurelius Ave., Auburn, N. Y. AL-3-7396

Gleason Works, 1000 University Ave., Rochester 3, N. Y. GReenfield 3-1000

Globe Electrical Mfg. Co., 1729-45 W. 134th St., Gardena, Calif. FAculty 1-3311

Globe Industries, Inc., 1784 Stanley Ave., Dayton 4, Ohio BA 2-3741

Globe Ind, Inc., Integrated Dynamics Div., 5408 Coal Ave., S. E. Albuquerque, N. Mex., AL 5-1441 or AM 0-324

Goat Electronics Inc., 314 Dean St., Brooklyn 17, N. Y. UL 2-2311

Goe Engineering Co., 219 So. Mednik Ave., Los Angeles 22, Calif. ANgelus 1-2183

Goerz American Optical Co., C. P., 461 Doughty Blvd., Inwood, L. I. 96, N. Y. CE-9-8700

Golden Anderson Valve Specialty Co., Inc., 1232 Ridge Ave., Pittsburgh 33, Pa. FAirfax 2-8130
(See advertisement on page 82)

Golden Instruments, Inc., 2222 Diversey Parkway, Chicago 47, Ill. AL-2-0700

Gombos Co., John, Webro Road, Clifton, N. J., PRescott 3-6633

Good-All Electric Mfg. Co., 112 West 1st, Ogallala, Nebraska Telephone 28-4-3611

Goodrich Co., B. F., Shelton, Conn., REgent 5-4661

Goodrich Industrial Products Co., B. F. Div. of the B. F. Goodrich Co., 500 S. Main St., Akron 18, Ohio BLackstone 3-1171

Gordon Co., Claud S., 3000 S. Wallace St., Chicago 16, Ill. VIctory 2-6525

Rep—Va., N. C., S. C., East Tenn., Ga., Ala.,
W. K. Hile Company, Inc.
John St., P. O. Box 235, Matthews, N. C.
Telephone 847-1616 TWX: MTWS-488

Gordon Enterprises, 5362 No. Cahuenga Blvd., No. Hollywood, Calif. POplar 6-3725

Gordos Corp., 250 Glenwood Ave., Bloomfield, N. J. PIlgrim 3-6800

Gore & Associates, Inc., W.L., 555 Paper Mill Rd., Newark, Delaware EN-8-9183

Gorham Mfg. Co., Electronics Div., 333 Adelaide Ave., Providence 7, R.I. WIlliams 1-1000

Gorn Electric Co. Inc., 845 Main St., Stamford, Conn. FIreside 8-7591

Gorton Machine Co., Geo., 1126 W. 13th St., Racine, Wis. MElrose 4-6644

Goslin Electric & Mfg. Co., 2921 W. Olive Ave., Burbank, Calif. VIctoria 9-3025

Gould Co., J. D., 4707 Massachusetts Ave., Indianapolis 18, Ind. LIberty 7-5289

Gould Laboratories, North Delsea Dr., Pitman, N. J. LUther 9-5753

Gove's Sons, Hartley, 12 Howard St., Vineland, N. J., OXford 1-4121

Gow-Mac Instrument Co., 100 Kings Road, Madison 1, N. J. FRontier 7-3450
(See advertisement on page 128)

Graf-Apsco Co., 5868 Broadway, Chicago 40, Ill. LOngbeach 1-6085

Graham Transmissions, Inc., Menomonee Falls, Wis. MEnomonee Falls 3600

Grain Laboratory Equip., Inc., Longlake, Minn. GR 3-8400

Grant Pulley & Hardware Corp., High St., West Nyack, N. Y. ELmwood 8-4400

Granville-Phillips Co., P. O. Box 198, Pullman, Wash. LOgan 4-1130

Graphic Controls Corp., 189 Van Rensselaer St., Buffalo 10 N. Y. MAdison 7500
(See advertisement on page 158)

Graphik-Circuits Div., Cinch Mfg. Co., 200 So. Turnbull Canyon Road, City of Industry, Calif. EDgewood 3-1201

Graphite Metallizing Corp., 1096 Nepperhan Ave., Yonkers, N. Y. YOnkers 8-8400

Gray Instrument Co., 448 Mill Rd., Andalusia, Pa. HO 4-2100

Grayhill Inc., 561 Hillgrove Ave., LaGrange, Ill. Fleetwood 4-1040

Great Lakes Mfg. Corp., 4223 Monticello Blvd., Cleveland 21, Ohio EV-2-5500

Green Instrument Co., Inc., 295 Uassar St. Cambridge 39, Mass. ELiot 4-2989
(See advertisement on page 196)

Green Instruments, Henry J., Inc., 2501 Shames Drive, Westbury, N. Y. EDgewood 3-5888

Green Rectifier Co., 1-10 30th St., Fairlawn. N. J. SWarthmore 7-8100

Greenbrier Instruments Inc., Ronceverte, W. Va. MI-7-4358

Greenleaf Mfg. Div., Mandrel Industries, 7814 Maplewood Industrial Court, St. Louis 17, Missouri ST-1-9888

Greer Hydraulics, Inc., 496 Grand Blvd., Westburg. N. Y. EDgewood 3-3700

Greibach Instruments Corp., 315 North Ave., New Rochelle, N. Y. New Rochelle 3-7900
(See advertisement on page 120)

Greiner Co., Emil, 20 N. Moore St., New York 13, N. Y. WO-6-4700

Greiner Glassblowing Laboratory, 3604 E. Medford St., Los Angeles, 63, Calif., ANgelus 9-2131

Gremar Mfg. Co., Inc., 7 North Ave., Wakefield, Mass. CRystal 9-4580

Griebel Co., E., 8 Wayne St., Carbondale, Pa. Telephone 153
(See advertisement below)

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Gries Reproducer Corp., 130 Beechwood St., New Rochelle, N. Y. NE 3-8600

Griffin Co., John, 2117 Grand Ave., St. Paul 5, Minn., MIdway 8-2810

Grinnell Co., 260 West Exchange St., Providence 1, R. I. TEmple 1-7000

Grobet File Co. of America Inc., 750 Washington Ave., Carlstadt, N. J. WE-9-6700

Groov-Pin Corporation, 1125 Hendricks Causeway, Ridgefield, N. J., Whitney 5-6780

Grove Valve & Regulator Co., 6529 Hollis St., Oakland 8, Calif. OL 5-7700
(See advertisement on page 50)

Gruenberg Electric Co., Inc. 9 Commercial Ave., Garden City, N. Y. PIoneer 1-4180

Guardian Electric Mfg. Co., 1550 W. Carroll Ave., Chicago 7, Ill., CHesapeake 3-1100

Gubelman Charts, Div. of Nashua Corp., 100-106 E. Kinney St., Newark 5, N. J. Mitchell 2-5970
(See advertisement on page 157)

Gudeman Co., 340 W. Huron St., Chicago 10, Ill. DElaware 7-7400

Gudeman Company of California, Inc., 7473 Avenue 305, Visalia, Calif. REdwood 2-4811

Guidance Controls Corp., 110 Duffy Ave., Hicksville, L. I., N. Y. WElls 8-9500

Gulton Industries, Inc., 212 Durham Ave., Metuchen, N. J. LIberty 8-2800

Gulton-Ortholog, Inc., 4054 Quaker Bridge Rd., Trenton, N. J., SWinburne 9-1520

Gump Co., B. F., 1325 S. Cicero Ave., Chicago 50, Ill. BI 2-3050

Gurley, W. & L. E. 514 Fulton St., Troy, N. Y. AShley 2-6300
(See advertisement on page 171)

Gustafson Mfg. Co. G. D., 29 E. Madison St., #1409, Chicago 2, Ill. STate 2-1341
(See advertisement on page 220)

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Guthery Machine Tool Corp., 38-31 Crescent St., Long Island City 1, N. Y.

Gyra Electronics Corp., P. O. Box 184, LaGrange, Ill. FLeetwood 4-4644

Gyrex Corp., 3003 Pennsylvania Ave., Santa Monica, Calif. EXbrook 3-0462

H

H-B Instrument Co., American & Bristol Sts., Philadelphia 40, Pa. DA 9-9125

H & H Machine Co., Inc., Noble & Jackson St., Norristown, Pa. BRoadway 2-6453

H. J. J. Company, 268 Marlow Drive, Oakland 5, Calif. LOckhaven 2-1603
(See advertisement on page 200)

HQ Div., Aerovox Corp., Olean, N. Y., FR 2-6611

HRB-Singer, Inc., Science Park, State College, Penna., AD 7-7611

Hacker & Co., Inc., William J., P. O. Box 646, West Caldwell, N. J.

H. A. Hadley Inc., 41 Barlow St., Burlington, Vt., UN 2-7230

Hagan Chemicals & Controls, Inc., Hagan Center, P. O. Box 1346, Pittsburgh 30, Pa. WAlnut 2-3737
(See advertisement on pages 17, 18, 19, 21, 29, 44, 50, 55, 60, 61, 62, 162)

Hagen Mfg. Co., A Division of The Gamewell Co., 104 Walnut St., Baraboo, Wis. Telephone 1195

Haledy Electronics Co., 57 William St., New York 5, N. Y. WHitehall 3-3140

Halex, Inc., 310 East Imperial Highway, P. O. Box 546, El Segundo, Calif. EAstgate 2-2000 and SPring 2-2545

Hallamore Electronics Div. of Siegler Corp., 714 N. Brookhurst St., Anaheim, Calif. PRospect 4-1010

Hallikainen Instruments, 1341—7th St., Berkeley 10, Calif., LAndscape 4-1757

Representative
Kurt J. Lesker Company
Veman Ave. at Doyle Rd., Pgh. 27 TU 4-4500
2111 S. Green Rd., Cleveland 21 Tel: 382-6170

Halltest Div., Instrument Systems Corp., 128-07 18th Ave., College Point 56, N. Y., IN 1-1000

Hamilton Standard Div., Electronics Dept., 92 Main St., Broad Brook, Conn. NA-3-1621

Hamilton Tool Co., 9th St. at Hanover, Hamilton, Ohio, TWinbrook 5-4351

Hamilton Watch Co., Allied Products, Columbia Ave., Lancaster, Pa. EXpress 4-7161

Hamlin, Inc., Lake & Grove Sts., Lake Mills, Wisconsin, Phone: 209

Hammel-Dahl Div., General Controls Co., Warwick Industrial Park, Warwick, R. I. STuart 1-6200

Hamner Electronics Co., Inc., P. O. Box 531, Princeton, N. J. PEnnington 7-1320

Hand & Sons Co., John E., Atlantic & Washington Aves., Haddonfield, N. J. HAddonfield 9-0480

Handicraft Tools (See X-Acto, Inc.)

Handley Inc., 12960 Panama St., Los Angeles 66, Calif. UPton 0-7950

Handy & Harman, 850 Third Ave., New York 22, N. Y. PLaza 2-3400

Hankison Corp., Dept. CI, College & Pike, Canonsburg, Pa. SHerwood 5-1555
(See advertisement on page 16)

Rep—Ontario, Quebec, & Nova Scotia
R. D. Travers Company
4 Freeman Place, Hamilton, Ontario, Canada JAckson 2-3823

Hannifin Co., Div. of Parker-Hannifin Corp., 663 So. Wolf Rd., Des Plaines, Ill., VAnderbilt 7-1171

Hanovia Lamp Div., Engelhard Hanovia, Inc., 100 Chestnut St., Neward 5, N. J. BIgelow 2-2422

Hansen Co., Wm., 165 Silverbrook Ave., Niles, Mich. MU 3-8606

Hansen Mfg. Co., 4031 W. 150th St., Cleveland 35, Ohio

Hansen Mfg. Co. Inc., P. O. Box 23, Princeton, Ind.

Harco Laboratories, Inc., 77 Olive, New Haven 7, Conn. STate 7-6701

Harder Co., Donald C., 2580 "K" St., San Diego 2, Calif., BElmont 9-8021

Hardwick, Hindle, Inc., 40 Hermon St., Newark 5, N. J. MArket 2-8200

Harmon Electronics Co., RR #1, Grain Valley, Miss., Buckner Mo. Circle 9-3338

Harowe Servo Controls, Inc., Mount Rd., Lenni Mills, Penna., GLobe 9-3600

Harrel, Inc., 1788 First Ave., New York 28, N. Y. SAcremento 2-3683

Harris A. S. W. Div., a subsidiary of General Instrument Corp., P. O. Box 247, Woodbury, Conn. COngress 3-2116

Harris Manufacturing Co., Inc., 308 River St., Cambridge 39, Mass. UNiversity 4-4000

Harris Refrigeration, see Harris Mfg.

Harrison Laboratories, Inc., 45 Industrial Rd., Berkeley Heights, N. J. CRestview 3-9123

Hart Manufacturing Co., 220 Bartholomew Ave., Hartford 1, Conn. JAckson 5-3491

Hartford Steel Ball Co., Inc., 12 Jefferson Ave., West Hartford, Conn. AD-3-1251

Hartman Electrical Mfg. Co., 175 North Diamond St., Mansfield, Ohio LA-4-1411

Hartwell Corp., 9035 Venice Blvd., Los Angeles 34, Calif., UPton 0-3781

Harvey-Wells Electronics, Inc., Div., 5168 Washington St., West Roxbury 32, Mass. FAirview 7-8000

Haskris Co., 6712 N. Crawford Ave. Chicago 46, Ill. COrnelia 7-3211

Hasler-Tel. Co., Inc., 30 Vesey St., New York 7, N. Y. WOrth 2-2831
(See advertisement on page 58)

Hass Instrument Corp., 6173 Branch Ave., SE, Washington 22, D. C. HI 9-5454
(See advertisement on page 51)

John Hassall, Inc., P. O. Box 2158, Westbury. Long Island, N. Y.

Hastings-Raydist, Inc., Newcomb Ave., Hampton, Va. PArk 3-6531
(See advertisement on page 76)

REPRESENTATIVES

Arizona, Scottsdale
Samuel O. Jewett Company
45 West First Avenue
WHitney 5-9711

California, North Hollywood
Samuel O. Jewett Company
13111 Ventura Blvd.
STate 9-8103

California, San Francisco 11
King-Knight Company
360 Jefferson Street
PRospect 6-2700

Colorado, Denver 22
Allen I. Williams Company
2261 So. Albion Street
SKyline 6-9403

Connecticut, West Hartford 7
Joseph H. Bertram Co., Inc.
998 Farmington Avenue
ADams 3-9823

Florida, Clearwater
Leroy E. Rogers Company
9 No. Highland Avenue
Phone: 442-4666

Illinois, Chicago 44
Sherertz-Henderson Co.
5707 West Lake Street
COlumbus 1-1032

Louisiana, Baton Rouge
Hahn Sales Company
5945 Plank Road
ELgin 7-2423

Massachusetts, Needham Heights 94
Joseph H. Bertram Co., Inc.
570 Hillside Avenue
HIllcrest 4-7304

Michigan, Royal Oak
The Satullo Company
4514 N. Woodward Avenue
JOrdan 6-2375

Missouri, St. Louis 17
Bruce Greaves Company
8787 Bridgeport Avenue
WOodland 2-1770

New Mexico, Albuquerque
Allen I. Williams Company
3221 Silver Ave., S. E.
ALpine 5-9632

New York, Rochester 10
Nickles Engineering Co.
830 Linden Avenue
LUdlow 6-4988

New York, Syracuse 2
George O. Miller Company
639 So. Warren Street
HArrison 2-5004

Ohio, Cincinnati 45
The Satullo Company
785 West Ohio Pike
PLymouth 2-6683

Ohio, Cleveland 12
The Satullo Company
16801 Euclid Avenue
IVanhoe 1-0204

Pennsylvania, Devon
Tyler Griffin Company
32 So. Fairfield Road
MUrray 8-4821

Pennsylvania, Pittsburgh
Kurt J. Lesker Company
4535 Veman Avenue
TUxedo 1-4666

Utah, Salt Lake City
Allen I. Williams Company
320 East Fourth South
EMpire 4-6844

Washington, Seattle 1
Instrumentation Engineering
Sales and Service Company
1331 Third Ave. Bldg.
MAin 2-0600

Hathaway Instruments, Inc., 5800 E. Jewell, Denver 22, Colo. SKyline 6-8301

Haveg Industries, Inc., Plastics Park, Wilmington 8, Del. WYman 8-2271

Hawk Tool & Engrg. Co., Inc., Clarkston, Mich. WOodward 3-1007

Haydon Co., A.W., 224 No. Elm St., Waterbury 20, Conn. PLaza 6-4481

Haydon Co., A. W. (Calif.), 4060 Ince Blvd., Culver City, Calif. UPton 0-5461

Haydon Div., General Time Corp., 245 E. Elm St., Torrington, Conn. HUnter 9-3158

Haydon Instrument Co., 17 Brown St., Waterbury 20, Conn. PLaza 3-4147

Haydon Switch, Inc., 536 So. Leonard St., Waterbury 20, Conn. PLaza 6-7441

Hayes, Inc., C. I., 800 Wellington Ave., Cranston 10, R. I., HOpkins 1-3400

Hays Corp., Michigan City 39, Ind., TRiangle 2-5561

Hays Manufacturing Co., Automatic Controls Div., 801 W. 12th St., Erie, Pa. GL-2-3221

Hayward Scientific Glass Corp., 217 N. Magnolia Ave., Whittier, Calif. OXford 5-8213 and 5-1214

Healy-Ruff Co., 2255 University Ave., St. Paul 14, Minn. MIdway 6-2701

Heath Company a subsidiary of Daystrom Inc., Hilltop Rd., Benton Harbor, Mich. YU-3-3961

Heinze Electric Co., 685 Lawrence St., Lowell, Mass. GL 7-7556

Heise Bourdon Tube Co., Inc., Brook Road, Newtown, Conn. GArden 6-4406
(See advertisement on page 48)

Heitz, Inc., Karl, 480 Lexington Ave., New York 17, N. Y. YUkon 6-4920
(See advertisement on page 88)

Helicoid Gage Div., American Chain & Cable Co., Inc., 929 Connecticut Ave., Bridgeport 2, Conn. EDison 5-0161

Heller Co., Gerald K., 1819 Industrial Road, P. O. Box 4426, Las Vegas, Nev.

Hellige, Inc., 877 Stewart Ave., Garden City, N. Y. PIoneer 1-3300

Henderer's Sons, A. L., 639 Maryland Ave., Wilmington 99, Del. OLympia 2-1014

Henry Valve Co., 3215 North Ave., Melrose Park, Ill. FIllmore 4-1100

Henshel Corp., 14 Cedar St., Amesbury, Mass. 388-1103

Henson Co., Fred C., 3311 E. Colorado Blvd., Pasadena 8, Calif. SY-2-3311

Herion Inc., 18 Amherst Rd., P. O. Box 184, Valley Stream N. Y., PYramid 1-4990

Hermes Electronics Co., 75 Cambridge Parkway, Cambridge 42, Mass. UN-4-7200

Hermetic Seal Corporation, 43 River Road, No. Arlington, N. J. WYman 8-8080

Herron Optical Co., 9117 S. Main St., Los Angeles 3, Calif. PLymouth 4-2943

Hersey-Sparling Meter Co., 225 N. Temple City Blvd., El Monte, Calif., CUmberland 3-7101

Hetherington & Berner Inc., 701 Kentucky Ave., Indianapolis 7, Ind.

Heusser Instrument Mfg. Co., 121 W. Malvern Ave., Salt Lake City 15, Utah, HUnter 5-1601

Hevi-Duty Electric Co., 304 Hart St., Watertown, Wis. Tel: 3980

Hewlett-Packard Co., 1501 Page Mill Rd., Palo Alto, Calif. DAvenport 6-7000

Hewson Co., Inc., 443 Broad St., Newark 2, N. J. HUmboldt 3-3000

Hexacon Electric Co., 161 W. Clay Ave., Roselle Park, N. J. CHestnut 5-6200

Hexem Inc., Box 636, Los Gatos, Calif., EL 4-1260

Hi-G, Inc., Bradley Field, Windsor Locks, Conn. NAtional 3-2481

Hickok Electrical Instrument Co., 10519 Dupont Ave., Cleveland 8, Ohio. LIberty 1-8060

Hidyne Instrument & Engineering Co., P. O. Box 257, Tullahoma, Tenn., GLendale 5-9810

Hieatt Engineering Co., 2228 N. Hollywood Way, Burbank, Calif., VI 9-2327

High Accuracy Products Corp., 149 West 1st St., Claremont, Calif. NAtional 4-3676

High Pressure Equipment Co. Inc., 1222 Linden Ave., Erie, Pa. TE-8-2028

High Temperature Instruments Corp., 225 W. Lehigh Ave., Philadelphia 33, Pa. MOhawk 4-5985

High Vacuum Equipment Corporation subsidiary of Robinson Technical Products, Inc., 2 Churchill Rd., Hingham, Mass. Riverview 9-2430

High Voltage Engineering Corp., S. Bedford St., Burlington, Mass. BR-2-1313

Hill & Co., E. Vernon, P. O. Box 189, Lake Geneva, Wis. CHestnut 8-3729

Hill Electronics, Inc., 300 N. Chestnut St., Mechanicsburg, Pa., POplar 6-7611

Hillburn Electronic Prods. Co., 55 Greenpoint Ave., Brooklyn 22, N. Y. STag 2-3875

Hills-McCanna Co., 4595 W. Touhy Ave., Chicago 46, Ill. ORchard 4-7080

Hirschmann Co., Inc., Carl, 30e Park Ave., Manhasset, L. I., N. Y. MAnhasset 7-5300

Hi-Spec Electronics Corp., 7328 Ethel Ave., No. Hollywood, Calif. POplar 5-5075

Hitachi, Ltd., Tokoyo, Japan

Hitemp Wires, Inc., 1200 Shames Drive, Westbury, L. I., N. Y. EDgewood 3-4600

Hobbs Corp., John W., Div. Stewart-Warner Corp., Yale & Ash Sts., Springfield, Ill. Lakeside 8-7533

Hodge Controls Div., Ovitron Corp., 105 River Rd., Cos Cob, Conn., TOwnsend 9-8880

Hoffman Electronics Corp., Semiconductor Div., 1001 N. Arden Drive, El Monte, Calif. CU-3-1791

SALES OFFICE LOCATIONS

ALABAMA
Roy Attaway Company
2315 Bob Wallace Ave., S. W., Huntsville
Suite 5. Tel: 534-2811, TWX: HTVL 8583

CALIFORNIA
Hoffman Semiconductor
633 Alameda Blvd., Coronado
BE 9-6850, HE 5-9076

1001 N. Arden Drive, El Monte
CUmberland 3-7191. TWX: EL MO 9735

1561 Laurel St., San Carlos
LYtel 1-5796. TWX: SAN CARLOS BEL 23

COLORADO
Barnhill Associates
1170 South Sheridan Blvd., Denver
WEst 5-4646

FLORIDA
Hoffman Semiconductor
4230 S. W. Fifteenth St., Miami
HIghland 3-6065

IDAHO
Seatronics, Inc.
P. O. Box 2126, Idaho Falls
JAckson 2-7992

ILLINOIS
Hoffman Semiconductor
930 Pitner Ave., Evanston
UNiversity 9-2400. TWX: EVST 2999

MASSACHUSETTS
Hoffman Semiconductor
250 Boylston, Boston
COngress 2-1340. TWX: BS 1384

MINNESOTA
Stan Clothier Company
12 West 58th Street, Minneapolis
TAylor 5-1234. TWX: MP 970

MISSOURI
Kay Sales Company
2600 Grand Ave., Kansas City
BAltimore 1-3800. TWX: KC 696

NEW JERSEY
Hoffman Semiconductor
Suite 209, 100 Menlo Park, Metuchen
LIberty 9-3500. TWX: METU 1671

NEW MEXICO
Barnhill Associates
P. O. Box 1790, Alamagordo
HEmlock 7-2787

NEW YORK
Robert W. Jackson Co.
P. O. Box 2668, Buffalo
TF 9-2094

Robert W. Jackson Co.
P. O. Box 72, Fairport
BR 1-4370

Robert W. Jackson Co.
P. O. Box 52, Fayetteville
NEptune 7-3851

NORTH CAROLINA
Roy Attaway Company
407 Nissen Building, Winston-Salem
Tel: 722-9671. TWX: W SAL 244

OHIO
Hoffman Semiconductor
Clark Bldg., 4110 Secor Rd., Toledo
GReenwood 2-5632. TWX: TO 568

PENNSYLVANIA
Hoffman Semiconductor
Room 111B, Washington Lane
& Township Line Rd., Jenkintown
WAverly 4-0307. TWX: JEN 1329

TEXAS
Amman & Champion Company
2714 Bomar, P. O. Box 35263, Dallas
FLeetwood 7-3939. TWX: DL 210

CONTINUED ON PAGE 222

UTAH
Barnhill Associates
660 E. First St., Centerville
ELgin 5-5101

WASHINGTON
Seatronics, Inc.
1817 Norman St., Seattle
EAst 3-8545. TWX: SE 255

WASHINGTON, D. C.
Hoffman Semiconductor
1009 Cafritz Bldg., 1625 "I" St., N. W.
STerling 3-7857. TWX: WA 227

Hoffman Engineering Corp., 9th & Tyler St., Anoka, Minn., HArrison 1-2240

Hoffman Laboratories, see Military Products Division

Hoke Incorporated, 1 Tenakill Park, Cresskill, N. J. LOwell 8-9100

Rep—N. Y. State (except Metro), N. Pa.
The Carl A. Pearson Co., Inc.
232 Winton Rd. N., Rochester 10, N. Y.
BUtler 8-2526

Rep—Pittsburgh, Pa., Charleston, W. Va.
Fogleman Co., Inc.
3849 Willow Ave., Pittsburgh 34, Pa. LE-1-4005
510 "C" St., S. Charleston 3, W. Va. RI-4-8401

Representative—Philadelphia Area
Shelby Jones Co., Inc.
P. O. Box 514, Havertown, Pa.
HIlltop 6-6600

Holt Instrument Laboratories, P. O. Box 230, Oconto, Wis. Telephone 163 and 164

Holtzer-Cabot Div., National Pneumatic Co., Inc., 125 Amory St., Boston 19, Mass. JAmaica 4-7000

Homestead Valve Mfg. Co., Coraopolis, Pa., AMherst 4-3240

Hommel Co., O., P. O. Box 475, Pittsburgh 30, Pa. WAlnut 1-1194

Hoover Electric Co., 2100 S. Stoner Ave., Los Angeles 25, Calif. BR-2-3125

Hoover Electronics Co., 110 W. Timonium Rd., Timonium, Md. VAlley 5-5200

Horswell Co., Mendham, N. J.

Hoskins Mfg. Co., 4463 Lawton Ave., Detroit 8, Mich. TYler 5-2860
(See advertisement on page 190)

Houdaille Industries, Inc., Manzel Div., 315 Babcock St., Buffalo 10, N. Y., TF 4-5300

Houston Fearless Corp., 9107 Wilshire Blvd., Beverly Hills, Calif., CR 3-1290

Houston Instrument Corp., P. O. Box 22234, Houston 27, Texas. Mohawk 7-7405
(See advertisement on pages 115, 126)

Houston Magnetic Products, Inc. (Subsidiary of Houston Instr. Corp.), 1514 Foley St., Houston 24, Tex. HOmestead 8-2696

Howard Industries Incorporated, 1760 State St., Racine, Wis. MElrose 2-2731

Howe Scale Co., Rutland, Vt. PRospect 5-5541

Howell Instruments Inc., 3479 W. Vickery Blvd., Fort Worth 7, Texas ED-6-7411

Hoyt Electrical Instrument Works, see Burton-Rogers Co.

Hub-Pot, Inc., 13827 Saticoy St., Van Nuys, Calif. STate 2-2300

Hufco Industries, 2815 W. Olive Ave., Burbank, Calif. Victoria 9-2118

Hughes Co., Inc., Kenneth E., 4808 Bergenline Ave., Union City, N. J. UNion 7-3204
(See advertisement on page 173)

Hughes, Industrial Systems Division, 5261 West Imperial Highway, Los Angeles 45, Calif. ORchard 0-1515

Hughes Microwave, 11105 S. La Cienega Blvd., Los Angeles 45, Calif., SPring 6-1515 or Orchard 0-1515

Hughes Products, International Airport Sta., Los Angeles 45, Calif. ORchard 0-1515

Hughes Semiconductor, 500 Superior Ave., Newport Beach, Calif., LIberty 8-0617

Hulcher Company, Inc., Charles A., 911 "G" St., Hampton, Va. Newport News CHestnut 5-6190

Humphrey, Inc., 2805 Canon St., San Diego 6. Calif. AC-3-1654

Humphrey Products Div., General Gas Light Co., P. O. Box 2008, Kilgore at Sprinkle, Kalamazoo, Mich. FI 2-0127

Hunt Valve Co., Division of International Basic Economy Corp. (IBEC), 1913 East State St., Salem, Ohio ED-7-9535

Hunter Assocs. Lab., Inc., 5421 Brier Ridge Rd., McLean, Va. KEnmore 8-5225

Hunter Spring Co., 1 Spring Ave., Lansdale, Pa. Ulysses 5-6815

Huppert Co., K. H., 6830-40 Cottage Grove, Chicago 37, Ill. MI 3-4770

Hurst Mfg. Corp., Princeton, Ind. FUlton 5-5403

Hydel, Inc., 223 Crescent St., Waltham 54, Mass. TWinbrook 3-8200

Hydra-Power Corp., 10 Pine Court, New Rochelle, N. Y. NE-2-2200

Hydraulic Controls Co., Inc., 217 California St., Newton 58, Mass. DEcatur 2-0066

Hydro-Aire Co., Div of Crane Co., 3000 Winona Ave., Burbank, Calif., TH 2-6121

Hydromatics, Inc., 5 Lawrence St. Bloomfield, N. J.

Hydroway Scales, Inc., 31302 Stephenson Hwy., Madison Heights, Mich. JOrdon 6-3965

Hysol Corp., 322 Houghton Ave., Olean, N. Y., FR 2-6300

I

IBM Federal Systems Division, 326 East Montgomery Ave. Rockville, Maryland GArden 4-6700

I.D.E.A., Inc., 7900 Pendleton Pike, Indianapolis 26, Ind., LIberty 7-3581

IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, N. Y. Western Div., 6058 Walker Ave., Maywood, Calif. Arizona Div., 917 W. Madison St., Phoenix

ITI Electronics, Inc., 369 Lexington Ave., Clifton, N. J., GRegory 3-0900

ITT Components Div., Western Operations, 815 San Antonio Road, Palo Alto, Calif. DA-6-9900

ITT Federal Laboratories, Div. of International Tel & Tel, 500 Washington Ave., Nutley, N. J., NOrth 1-1100

Iconix Inc., 945 Industrial Ave., Palo Alto, Calif., 415-DA 3-1411

Ideal-Aerosmith, Div. of Royal Ind. Inc., 3913 Evans Ave., Cheyenne, Wyo., 634-7714
(See advertisement on page 43)

Rep—Kansas, Mo., Okla., Texas
Lawrence L. Hill Co.
1635 Garland, Wichita 1, Kansas
AMherst 7-3850

Ideal Industries, Inc., 1420 Park Ave., Sycamore, Ill. Telephone 2114

Ideal Precision Meter Co., Inc., 214-218 Franklin St., Brooklyn 22, N. Y. EV 3-6904

Ilex Optical Company, 690 Portland Ave., Rochester 21, N. Y.

Illinois Condenser Co., 1616 North Throop St., Chicago 22, Ill. EVerglade 4-1300

Illinois Testing Laboratories (see Alnor Instrument Co. Div.)

Illumitronic Engineering Co., 680 E. Taylor Ave., Sunnyvale, Calif.

Image Instruments, Inc., 2300 Washington St., Newton Lower Falls 62, Mass. BIgelow 4-2256

Impact Register Co., P. O. Box 445, Champaign, Ill., FLeetwood 2-4816

Impact-O-Graph Corp., 1900 Euclid Ave., Cleveland 15, Ohio CHerry 1-5838

Imperial—Eastman Corp., 6300 W. Howard St., Chicago 48, Ill. SPring 4-1700

Imtra Corp., 11 University Rd., Box 254, Cambridge 38, Mass., UNiversity 4-4350 or Eliot 4-1010

Indiana Steel Products, Div. of Indiana General Corp., 405 Elm St., Valparaiso, Ind. HOward 2-3131
(See advertisement on page 68)

Indikon Co. Inc., 76 Coolidge Hill Rd., Watertown 72, Mass. WAtertown 4-2198

Induction Heating Co., Sub. of Hathaway Instruments, Inc., 181 Wythe Ave., Brooklyn 11, N. Y., EVergreen 4-3110

Industrial Control Co., Central Ave., at Pinelawn, Farmingdale, L. I., N. Y. MYrtle 4-3000

Industrial Development Labs Inc., 982 River Rd. Edgewater, N. J., WHitney 3-4084

Industrial Devices Inc., Edgewater, N. Y. WHitney 3-4084

Industrial Electronic Engineers, Inc., 5528 Vineland Ave., North Hollywood, Calif. TRiangle 7-1144
(See advertisement on pages 89, 93)

Industrial Engineering Corp., 525 E. Woodbine, Louisville 8, Ky. MElrose 4-3601

Industrial Filter & Pump Mfg. Co., 5900 West Ogden Ave., Cicero-Zone 50, Ill., OLympic 2-8700 or BIshop 2-1180

Industrial Instrument Corp., P. O. Drawer 777, 8400 Research Blvd., Austin 64, Tex. GLendale 3-7261

Industrial Instruments, Inc., 89 Commerce Rd., Cedar Grove, N. J. CEnter 9-6200
(See advertisement on pages 18, 34, 104, 105, 110, 136, 140, 160, 161, 222)

Industrial Jewel Bearing Co., Stockham Bld., Morrisville, Pa., CYpress 5-3351

Industrial Measurements Corp., 445 N. Garey Ave., Pomona, Calif. NAtional 3-1588

INDUSTRIAL INSTRUMENTS INC.

Electrical/Electronic Test
Equipment Representatives

Albuquerque, N. M.
Williams & Assoc. Inc.
Alpine 5-9632 or Alpine 5-9674
Charlotte 9, N. C.
Mac Guire Instr. Co.
704-Emerson 6-3454
Chicago 31, Ill.
Kenneth W. Meyers Co.
Spring 4-6440
Dearborn, Mich.
Anger Associates
313-Luzon 4-9853
Denver, Colo.
Williams & Assoc. Inc.
Skyline 6-9403
New Haven 14, Conn.
Howard J. Schuft Co. Inc.
University 5-1365
New York, N. Y.
Industrial Instruments, International Division
Yukon 6-2244
Newtonville, Mass.
Howard J. Schuft Co. Inc.
617-Lasell 7-5304
Ontario, Canada
Lisle Instr. Systems, Ltd.
416-Melrose 5-0131
Orlando, Florida
Q-C Equipment Sales
Garden 2-0495
Palo Alto, Calif.
G. H. Vaughan Co.
Davenport 1-1347
Pasadena, Calif.
G. H. Vaughan Co.
213-Sycamore 5-4420—Murray 1-4511-Local
Phoenix, Arizona
Williams & Assoc. Inc.
Cr 7-7477
Pittsburgh 27, Pa.
Kurt J. Lesker Co.
412-Tuxedo 1-4666
Portland 1, Oregon
Fryer and Co. Inc.
503-Capital 6-3733
Rochester 10, N. Y.
Edw. A. Ossmann & Assoc.
Ludlow 6-4940
Roseland, N. J.
Gawler-Knoop Co.
Capitol 6-4545
St. Louis 30, Mo.
Gordon Fixman Eng. Co.
314-Parkview 5-5219
St. Paul 5, Minn.
Eng. Prods. Assoc.
612-Midway 8-5531
Salt Lake City 11, Utah
Williams & Assoc. Inc.
Empire 4-6844
Silver Spring, Md.
Gawler-Knoop Co.
Juniper 5-7550
Syracuse, N. Y.
Edw. A. Ossmann & Assoc.
Glenview 4-2462
Towson 4, Md.
Gawler-Knoop Co.
Valley 5-3151
Vestal, N. Y.
Edw. A. Ossmann & Assoc.
Stillwell 5-0296
Wyncote, Pa.
Gawler-Knoop Co.
215-Waverly 7-1820

Electrolytic Conductivity
Equipment Representatives

Atlanta 5, Ga.
Ward K. Stallings Co. 404-Cedar 7-0600
Baton Rouge, La.
Hahn Sales Co. 504-Elgin 7-2423
Charlotte 9, N. C.
Mac Guire Instr. Co. 704-Emerson 6-3454
Chicago 2, Illinois
Thomson and Co. 312-Andover 3-5056
Cleveland 21, Ohio
Kurt J. Lesker Co. 216-382-6170
Dallas 5, Texas
Gay Sales Co. 214-Emerson 8-2325
Dearborn, Mich.
Anger Associates 313-Luzon 4-9853
El Paso, Texas
Delta Instrument Ke 3-0113
Houston, Texas
Gay Sales Co. 713-Un 9-3306
Ontario, Canada
Lisle Instr. Systems 416-Melrose 5-0131
Palo Alto, Calif.
G. H. Vaughn Co. Davenport 1-1347
Pasadena, Calif.
G. H. Vaughn Co. Murray 1-4511-Local
213-Sycamore 5-4420
Phoenix, Arizona
Delta Instruments 602-Crestwood 9-2612
Pittsburgh 27, Pa.
Kurt J. Lesker Co. 412-Tuxedo 1-4666
Poplarville, Miss.
Hahn Sales Co.
Portland 1, Oregon
Fryer & Co. Inc. 503-Capital 6-3733
St. Louis 22, Mo.
E. B. Miller Co. 314-Yorktown 6-8250
W. Hartford 7, Conn.
Industrial Instruments, Inc., AD 8-3250

Industrial Instruments Inc.

89 Commerce Road, Cedar Grove, Essex County, N. J

Industrial Nucleonics Corp., 650 Ackerman Rd., Columbus 2, Ohio. AMherst 7-6351

Industrial Processes, Inc., 621 S. W. Morrison St., Portland 5, Ore.

Industrial Pyrometer & Supply Co., 200 Hack St. Alton, Ill., HO-5-7623

Industrial Rectifier Devices, Inc., 324 Lafayette St., New York 12, N. Y. WOrth 4-4960

Industrial Sapphire Co., P. O. Box 422C, Quakertown, 13, Pa. KE 6-3500

Industrial Tectonics, Inc., 3686 Jackson Road, Ann Arbor, Mich. NO-3-2451

Industrial Test Equipment Co., 55 E. 11th St., New York 3, N. Y. GRamercy 3-4684
(See advertisement on page 114)

Industrial Timer Corp., 1407 McCarter Highway, Newark 4, N. J. HU 4-5600

Industrial Transformer Corp., Gouldsboro, Pa. VIctor 2-2111

Industro Transistor Corp., 35-10—36th Ave., Long Island City 6, N. Y. EXeter 2-8000

Inertia Switch Corp., 311 W. 43rd St., New York 36, N. Y. JUdson 6-5880

Infilco, Inc., 901 S. Campbell, Tucson, Ariz. MAin 3-5401

Information Systems Inc., 10131 National Blvd., Los Angeles 34, Calif. TExas 0-2777

Infrared Industries, Inc., 62—4th Ave., P. O. Box 42, Waltham 54, Mass. TWinbrook 3-5400

Ingersoll Products, Div. of Borg-Warner Corp., 630 Congdon Ave., Elgin, Ill., SHerwood 1-3490

Ingersoll-Rand Company, 11 Broadway, New York 4, N. Y. DIgby 4-6070

Ingraham Co., North Main St., Bristol Conn. LU-2-6321

Insco Co., Div. of Barry Wright Corp., Main St., Groton, Mass. GIlbert 8-6358

Instrol Inc., 135 E. De la Guerra St., Santa Barbara, Calif., WOodland 5-1691

Instron Engineering Corp., 2500 Washington St., Canton, Mass. CAnton 6-2500

Instrulab, Inc., 1205 Lamar St., Dayton 4, Ohio BA-3-2241

Instru-Lec Corp., 520 Homestead Ave., Mount Vernon, N. Y. MO-8-3754

Instrument Corp., of America, 516 Glenwood Ave., Baltimore 12, Md. IDlewood 3-7888

Instrument Corp. of Florida, P. O. Box 1226, Melbourne, Fla. PArkway 3-8112

Instrument Development Co., 3231 Kansas Ave., Riverside, Calif.

Instrument Development Laboratories, Inc., 67 Mechanic St., Attleboro, Mass. ATtleboro 1-3880

Instrument Gear Works, Inc., 4624 N. Oketo, Chicago 31, Ill. UN-7-9090

Instrument Laboratories, 315 W. Walton Place, Chicago 10, Ill. MI 2-0123

Instrument Laboratory, Inc., 934 Elliott Avenue West, Seattle 99, Wash. ATwater 3-5850

Instrument Mirror Co., Div. Houston Instr. Corp., 1514 Foley St., Houston 24, Tex. HOmestead 8-2696

Instrumentation Associates, 17 W. 60th St., New York 23, N. Y. CI 5-5590
(See advertisement on page 33)

Instruments, Inc., 3102 Sand Springs Rd., P. O. Box 556, Tulsa, Okla. LU-2-4151
Representative
W. K. Hile Company, Inc.
N. John St., P. O. Box 325, Matthews, N. C.
Telephone 847-1616 TWX: MTWS-488

Instruments, Inc. (Calif.), 3434 Midway Dr., San Diego 10, Calif. ACademy 3-7156

Instruments for Industry, 101 New South Road, Hicksville, N. Y. OVerbrook 1-7100

Insulation Manufacturers Corp., 565 W. Washington Blvd., Chicago 6, Ill., CEntral 6-7320

Intectron Inc., 2300 Washington St., Newton Lower Falls, Mass., WO 9-9311

Integrated Dynamics Division of Globe Industries, Inc., 5408 Coal Ave., S. E. Albuquerque, N. M. AM-8-0824

Intelex Systems Inc., Commercial Products, 22 Thames St., New York 6, N. Y. BOwling Green 9-3800

Interab Inc., 116 Kraft Ave., Bronxville, N. Y., Intercontinental Electronics Corp., 300 Shames Dr., Westbury, L. I., N. Y.

Interelectronics Corp., 2432 Grand Concourse, New York 58, N. Y. LUdlow 4-6200
(See advertisement on page 116)

International Electronic Research Corp., 135 W. Magnolia Blvd., Burbank, Calif. VIctoria 9-2481

International Electronics Corp., 81 Spring St., New York 12, N. Y. WO-6-0790

International Instrument Co., Canyon, Calif. DRake 6-4673

International Instruments Inc., Box 2954, New Haven 15, Conn. FUlton 7-2515

International-Mechanisms, 2815 Baird Rd., Fairport, N. Y. FR 7-3086

International Powder Metallurgy Co., 439 W. Main St., Ridgway, Penna., PR 3-3124

International Radiant Corp., 577 East 156th Street, New York 55, N. Y. CYpress 2-6000

International Radio & Electronics Corp., Box 261—S. 17th & Mishawaka Road, Elkhart, Ind. JA-2-8583

International Rectifier Corp., 233 Kansas St., El Segundo, Calif. ORegon 8-6281

International Register Co., Instrument Div., 2630 Washington Blvd., Chicago 12, Ill. VAn Buren 6-4242

International Research & Development Corp., 6150 Huntley Rd., Worthington, Ohio TUxedo 5-5376

International Resistance Co., 401 N. Broad St., Philadelphia 8, Pa. WAlnut 2-8900

International Telephone & Telegraph Corp., Industrial Products Div., 15191 Bledsoe St., San Fernando, Calif., EMpire 7-6161
(See advertisement on page 84)

Invar Electronics Corp., 1723 Cloverfield, Santa Monica, Calif. EXbrook 3-9011

Ipsen Industries, Inc., P. O. Box 500 Rockford, Ill. WOodland 5-9581

Isotronics Inc., L. L. Constantin Co., Route 46, Lodi, N. J., GRegory 1-0100

Itek-Electro Products, Inc., 75 Cambridge Parkway, Cambridge, Mass.

New England Representative
Instrument Dynamics, Inc.
11 Albion St., Wakefield, Mass.
Telephone 245-5100

Itemco, Inc., P. O. Box 191, Port Washington, N. Y. POrt Washington 7-8330

J

JB Electronic Transformers, Inc., 2310 W. Armitage Ave., Chicago 47, Ill., ARmitage 6-0444

J-B-T Instruments, Inc., New Haven 8, Conn.

JFD Electronics Corp., 6101—16th Ave., Brooklyn 4, N. Y. DEwey 1-1000

Jack & Heintz, A Div. of the Siegler Corp., P. O. Box 6719, Cleveland 1, Ohio, MOntrose 2-1000

Jackes-Evans Mfg. Co., Controls Div., 4427 Geraldine Ave., St. Louis 15, Mo., Ev 5-8050

Jadow, Inc., B., 860 Broadway, New York 3, N. Y.

Jaegers Optical Corp., A., 691 West Merrick Road, Lynbrook, N. Y.
(See advertisement on page 171)

Jaidinger Mfg. Co., Inc., Dept I 1921 W. Hubbard St., Chicago 22, Ill.
(See advertisement on page 180)

James Electronics Inc., 4050 N. Rockwell St., Chicago 18, Ill. CO 7-6333

James, Pond & Clark, Inc., 2181 East Foothill Blvd., Pasadena, Calif. SYcamore 3-9195

James Vibrapowr Co., 4050 N. Rockwell St., Chicago 18, Ill. CO 7-6333

Jamesbury Corp., 45 New St., Worcester, Mass., SW 1-1761
(See advertisement on page 81)

Jan Hardware Mfg. Co., Inc., 38-01 Queens Blvd., Long Island City 1, New York EMpire 1-0800

Janco Corporation, 3111 Winona Ave., Burbank, Calif. THornwall 8-5792 and VIctoria 9-2107

Jarrell Ash Co., 26 Farwell St., Newtonville 60, Mass. DEcatur 2-2130

Jedco Inc., 4289 Glendale-Milford Rd., Cincinnati 42. Ohio. TWeed 1-1300

Jeffrey Mfg. Co., 797 No. 4th St., Columbus 16, Ohio AX-4-3331

Jeffries Trnasformer Co., 610 Turner Street, Los Angeles 12, Calif. MAdison 5-2185

Jelliff Mfg. Corp., C. O., Pequot Road, Southport, Conn. Fairchild Exchange CLearwater 9-1615

Jennings Radio Mfg. Corp., 970 McLaughlin Ave., San Jose 8, Calif. CYpress 2-4025

Jensen Tool Co., H. C., 16 Mechanic St., Waltham 54, Mass. TW 3-7940

Jerber Engineering Co., 2334 Secane Rd., Secane, Pa.

Jerguson Gage & Valve Co., 100 Adams Street, Burlington, Mass. BRowning 2-3600

Jettron Products, Inc., 56 Route 10, Hanover, New Jersey, TUcker 7-0571

Jo-Bell Products Inc., 5456 W. 111th St., Oak Lawn, Ill. GArden 5-0240
(See advertisement on page 38)

Johanson Mfg. Corp., P. O. Box 329, Rockaway Valley Road, Boonton, N. J. DEerfield 4-2677

Johnson Co., E. F., 299 10th Ave., S. W., Waseca, Minn. Phone 507-835-2050

Los Angeles Representative
Wallace & Wallace
1206 Maple Ave., Los Angeles 15, Calif.
RIchmond 7-0401

Johnson Co., Inc., K. W., 1825 Webster St., Dayton 4, Ohio BA-4-1078

Johnson Corp., 805 Wood St., Three Rivers, Mich. CR-8-1715

Johnson Bronze Co., New Castle, Penna., OLiver 4-6631

Johnson Engrg. Co., Inc., Welton V., 95 Summit Ave., Summit, N. J. CRestview 7-4200
(See advertisement on page 199)

Johnson Mfg. Co., Inc., 148 Main St., Monroeville, Ind. Telephone 8811

Johnson Service Co., 507 E. Michigan St., Milwaukee 1, Wis. BR-6-9200
(See advertisement on page 64)

Johnson-Williams, Inc., 2300 Leghorn St., Mountain View, Calif. YO-7-7221

Jo-Line Tools, Inc., 8442 Otis St., South Gate, Calif. LOrain 7-1489

Jones Div., Howard B., 1026 S. Homan Ave., Chicago 24, Ill., NE-2-2000

Jones & Lamson Machine Company, Comparator Division, Clinton St., Springfield, Vt. TUrner 5-2121

Jones Motrola Corp., 432 Fairfield Ave., Stamford, Conn. DAvis 4-7381

Jones Optical Works, 2400 Massachusetts Ave., Cambridge 40, Mass. TRowbridge 6-3368—3369
(See advertisement on page 170)

Jordan Controls, Inc., 3235 West Hampton Ave., Milwaukee 9, Wis. UPtown 1-9240

Joy Manufacturing Co., Oliver Building, Pittsburgh 22, Pa. GRant 1-2140

Jules Racine & Co., Inc., 20 W. 47th St., N. Y. 36, N. Y., JU 2-0768-9

Julie Research Laboratories, Inc., 556 W. 168th St., New York 32, N. Y. LO 8-8700

K

K-F Development Co., 2606 Spring St., Redwood City, Calif. EMerson 8-5670

K. V. Transformer Corp., 20 E. Franklin St., Danbury, Conn., PIoneer E-5531

Kahle Engineering Co., 3322 Hudson Ave., Union City, N. J., UNion 7-6500

Kahn & Co., Inc., P. O. Box 516, Hartford 1, Conn. JAckson 9-8643

Kane Engineering Laboratories, 845 Commercial St., Palo Alto, Calif., DAvenport 1-2487

REPRESENTATIVES

TUSTIN, CALIFORNIA

Fieldtec
P. O., Box 325
LIncoln 4-5615

PITTSBURGH 27, PENNSYLVANIA

Kurt J. Lesker Company
4535 Veman Avenue
TUxedo 1-4666

CLEVELAND 12, OHIO

Kurt J. Lesker Company
2111 S. Green Rd.
Tel: 382-6170

DEVON, PENNSYLVANIA

Tyler Griffin Company
32 S. Fairfield Road
MUrray 8-4821

Kanthal Corporation, Amelia Place, Stamford, Conn. DAvis 5-2206

Karn Chemical Equip. Co., 518 Dickson Ave., Pittsburgh 2, Pa. WEllington 1-2983

Karnish Instrument Sales & Service, Inc., 210 Third Ave., Lock Haven, Pa. LOck Haven 7711-7712

Karr Co., R. J., 1605—16th St., Wyandotte, Mich. AV 4-4100

Kates Co., W. A., 430 Waukegan Road, Deerfield, Ill. WIndsor 5-0950

Kato Engineering Co., Mankato, Minn. Telephone 8-2941

Kaufman Glass Co., 1209-21 French St., Wilmington 99, Del., OLympia 4-9937

Kauke & Co. Inc., 1632 Euclid St., Santa Monica, Calif., GLadstone 1-11424

Kavamil Co., Inc., 1501 W. El Segundo Blvd., Compton, Calif., NEvada 6-9600

Kay Electric Co., Maple Ave., Pine Brook, N. J. CApital 6-4000

Kearfott Div., General Precision Inc., Little Falls, N. J. CLifford 6-4000

Kearney Industries, Delanium Graphite Div., P. O. Box 248 Raritan, N. J. LIberty 9-3800

Keckley Co., O. C., 3400 Cleveland St., Skokie, Ill. ORchard 4-8422

Keim Precision Mirrors Corp., 1346 E. Colorado St., Glendale 5, Calif. CH 5-2725

Keinath Instrument Co., 1223 Grandview Ave., Columbus 12, Ohio HUdson 6-0311

Keithley Instruments Inc., 12415 Euclid Ave., Cleveland 6, Ohio, SWeetbriar 5-2666

Keller, Hugo P., 50 E. 42nd St., New York 17, N. Y. MUrray Hill 2-8450
(See advertisement on page 166)

Kellogg Switchboard & Supply Co., 6650 South Cicero Ave., Chicago 38, Ill.

Kelvin Electric Co., 5907 Noble Ave., Van Nuys, Calif. STate 2-6662

Kemlite Laboratories, Inc., 1819 W. Grand St., Chicago 22, Ill. TA 9-6050

Kemp Mfg. Co., C. M. 405 E. Oliver St., Baltimore 2, Md. VErnon 7-1190
(See advertisement on page 26)

Kemtron Electron Prod. Inc., 14 Prince Pl., Newburyport, Mass. HO-2-4464

Kendrick & Davis Co., 11 Water St., Lebanon 2, New Hamp. LEb. 13

Kenett Corp., 320 Washington St., Brookline 47, Mass., LO 6-0378

Kennametal Inc., Lloyd Ave., Latrobe, Pa., KEystone 7-3311

Kennedy Co., 2029 N. Lake Ave., Altadena, Calif., MUrray 1-0028

Kennedy & Co., D. S., 432 S. Main St., Cohasset, Mass.

Keniseo Tube Co., Div., Robinson Technical Products, Inc. Mount Kisco, N. Y. Mount Kisco 6-8046
(See advertisement on page 23)

Kepco, Inc., 131-38 Sanford Ave., Flushing 55, N. Y.

Kern Instruments, Inc., 120 Grand St., P. O. Box 727 White Plains, N. Y.

Kernco Instruments Co., Inc., P. O. Box 1284, Church Street Station, New York 8, N. Y. TErrace 9-0585

Kerotest Manufacturing Co., 2525 Liberty Ave., Pittsburgh 22, Pa. GRant 1-2584

Kessler Co., Inc., Frank, 41-45 47th St., Long Island City 4, N. Y. STillwell 4-0263

Keuffel & Esser Co., 300 Adams St., Hoboken, N. J. OLfield 9-1100

Kewaunee Mfg. Co., 4061 Logan St., Adrian, Mich. COlfax 5-7131

Keystone Electronics Corp., 49 Bleecker St., New York, 12, N. Y., GR 5-4600

Keystone Manufacturing Co., 23328 Sherwood, Warren, Mich. SL-7-4400

Keystone Valve Corp., 5325 Kirby Dr., Houston 5, Texas

Representative—Philadelphia Area
Shelby Jones Co., Inc.
P. O. Box 514, Havertown, Pa.
Hilltop 6-6600

Kidde & Company, Walter, Inc., 675 Main St., Belleville 9, N. J. PLymouth 9-5000

Kieley & Mueller, Inc., 64 Genung St., Middletown, N. Y. DI 2-2526

Kilovolt Corporation 238 High Street Hackensack, N. J.

Kimball Co., A., 8 Rewe St., Brooklyn 11, N. Y. STagg 2-2700

Kin Tel, Div. of Cohu Electronics, Inc., 5725 Kearny Villa Rd., San Diego 11, Calif., BRowning 7-6700

Kinemotive Corp., 1353 New York Ave., Huntington Station, N. Y. MYrtle 2-6162

Kinetic Instrument Corp., 1070 Linwood Street, Brooklyn 8, N. Y. NIghtingale 9-8800

Kinetics Corp., P. O. Box 427, 410 S. Cedros, Sloana Beach, Calif., SKyline 5-1181

King Engineering Corp., P. O. Box 620, 3205 S. State St., Ann Arbor, Mich. NO. 2-5651
(See advertisement on page 40)

King-Seeley Div., of King-Seeley Thermos Co., 315 South First St., Ann Arbor, Michigan NOrmandy 2-6531

King Tester Corp., 444 N. 13th St., Philadelphia 23, Pa.

Kings Electronics Co., Inc., 40 Marbledale Rd., Tuckahoe, N. Y. SWiftwater 3-5000

Kingsley Machine Co., 850 Cahuenga Blvd., Hollywood 38, Calif. HOllywood 9-7243
(See advertisement on page 196)

Kingston Industries, Inc., 35 North St., Medfield, Mass. FLeetwood 9-4347

Kinney Vacuum Div., The New York Air Brake Co., 3529 Washington St., Boston 30, Mass. JA-2-7100

Kintronic Div., Chicago Aerial Industries Inc., 10134 Pacific Ave., Franklin Park, Ill. GLadstone 1-1830

Kip Electronics Div., York Research Corp., One Research Drive, Stamford, Conn. DAvis 5-1371

Kirkland Co., H. R., 10 King St., Morristown, N. J. JEfferson 8-2777

Kistler Instrument Corp., 15 Webster St., N. Tonawanda, N. Y. NX-2-2099
(See advertisement on page 150)

Klincher Locknut Corp., 2153 Hillside Ave., Indianapolis 18, Ind. WAlnut 5-9284

Klinger Scientific Apparatus, J., 82-87 160th Street, Jamaica 32, N. Y. OL-7-0335

Klipfel Valves, Inc., 1075 Lincoln Ave., Hamilton, Ohio TWinbrook 5-5661

Knopp Inc., 1307—66th St., Oakland 8, Calif. Olympic 3-1661

Kocour Company, 4800 S. St. Louis Ave., Chicago 32, Ill. VIrginia 7-1111

Koehler Instrument Co., Inc., 168-56 Douglas Ave., Jamaica 33, N. Y. JAmaica 3-7188

Kohler Co., Kohler, Wis., GLencount 7-4441

Kollmorgen Corp., 347 King St., Northampton, Mass. JUstice 4-0280

Kollsman Instrument Corp. 80-08 45th Ave., Elmhurst 73, N. Y. TWining 9-5600

Kolton Electric Mfg. Co., 123 New Jersey R. R. Ave., Newark 5, N. J.

Kontes Glass Co., Vineland, N. J., OX 2-5062

Koontz-Wagner Electric Co., Inc., 516 N. Michigan St., South Bend 1, Ind. CEntral 3-8251

Korfund Co., Inc., 48-15 32nd Place, Long Island City 1, N. Y. RA-9-7580

Krohn-Hite Corp., 580 Massachusetts Ave., Cambridge 39, Mass., UNiversity 4-4272

Kruger Instruments, Harold, 313 W. Valley Blvd., San Gabriel, Calif. AT 4-3541

Kulite-Bytrex Corp., 50 Hunt St., Newton 58, Mass., WAlnut 6-0360

Kulite Semiconductor Products Inc., 1030 Hoyt Ave., Ridgefield, N. J., WH 5-3000

Kulka Electric Corp., 633 So. Fulton Ave., Mt. Vernon N. Y. MO 4-4024

Kunkle Valve Co., 121 So. Clinton St. Ft. Wayne, Ind. A-7283
(See advertisement on page 46)

Kupfrian Mfg. Corp., 1 Henry St., Binghamton, New York RAymond 3-9561

Kurman Electric Co., A Subsidiary of Crescent Petroleum Corp., 191 Newel St., Brooklyn 22, N. Y. EVergreen 3-8000
(See advertisement on page 175)

Kurz-Kasch, Inc., 1421 S. Broadway, Dayton 1, Ohio. BAldwin 3-8161

Kwikheat Mfg. Co., 3732 San Fernando Rd., GlenDale 4, Calif, CHapman 5-2376

L

L.A.B. Corporation, 985 E. Onondaga, Skaneateles, N. Y. OVerbrook 5-5781

LKB Instruments, Inc., 4840 Rugby Ave., Washington 14, D.C., OLiver 2-3550

L & L Mfg. Co., 136—8th St., Upland, Pa. TRemont 2-5164

L & R Mfg. Co., 577 Elm St., Kearny (Arlington), N. J. WYman 1-5330

Labglass Inc., N. W. Boulevard, Vineland, N. J. OX-1-3200

Labline, Inc., 3070-82 W. Grand Ave., Chicago 22, Ill. SAcramento 2-5151

Laboratory Construction Co., 8811 Prospect., Kansas City, 32, Mo. EM-3-1355

Laboratory Equipment Corp., P. O. Box 151, St. Joseph, Mich. YUkon 3-5533

Laboratory for Electronics, Inc., Computer Products Division, 1079 Commonwealth Ave., Boston 15, Mass. ALgonquin 4-4235

Laboratory Furniture Co., Inc., Old Country Road, Mineola, N. Y. PIoneer 2-3600

Laboratory Optical Co., P. O. Box 387, Plainfield, N. J., PLymouth 2-6661

Lafayette Instrument Co., 52 ByPass and North 26 St., Lafayette, Ind., SH-2-7937

Lafayette Radio Electronics Corp., 165-08 Liberty Ave., Jamaica 33, N. Y., AXtel 1-7000

Lake City, Inc., 110 W. Woodstock St., Crystal Lake, Ill. phone 459-3200

Lake Erie Electric Mfg., Inc., 2952 W. 22nd St., Erie, Pa.

Pittsburgh and Buffalo Representatives
M. S. Jacobs & Associates, Inc.
810 Noblestown Rd., Pittsburgh 5, Walnut 2-4212
1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229

La Marche Mfg. Co., 3955 25th Ave., Schiller Park, Ill. TUxedo 9-5830

Lamb Electric Co., Div. of Am. Machine & Metals, Inc., Lake St., Kent, Ohio. ORchard 3-3451

Lambda Electronics Corp., 515 Broad Hollow Road Huntington, L. I., N. Y.

Laminated Sheet Products Corp., 449 Neponset St., Norwood, Mass., 762-3500

Lammert & Mann Co., 221 N. Wood St., Chicago 12, Ill., SEeley 3-0383

LaMotte Chemical Products Company, Chestertown, Maryland Chestertown 1000

Lampkin Laboratories, Inc., IAC Div., Bradenton, Florida Telephone 4175

Lancaster Glass Corp., 220 West Main St., Lancaster, Ohio OLive 3-0311

Land-Air, Inc., Subsidiary of California Eastern Aviation, Inc., 7444 W. Wilson Ave., Chicago 31, Ill. Underhill 7-7550

Landis & Gyr, Inc., 45 W. 45th St., New York 36, N. Y., JU-6-4644

Landsverk Electrometer Co., 641 Sonora Ave., Glendale 1, Calif. CHapman 5-6687
(See advertisement on page 135)

Langmar Corp., 4875 W. Armitage Ave., Chicago 39, Ill. BE-7-3375

LaPine Scientific Company 6001 South Knox Ave., Chicago 29, Ill. REliance 5-4700

Lapp Insulator Co., Inc., Process Equip., Div., 36 Cone St., Leroy 2, N. Y. Leroy 385

Largent Co., P. O. Box 9845, Houston 15, Texas

Larson Instrument Co., 24 Orchard St., Tarrytown, N. Y. MEdford 1-3419

Latronics Corp., P. O. Box 46, Latrobe, Pa. KEystone 9-1626

Lavallee & Ide, Inc., Grape St., Chicopee, Mass. LYceum 4-6601

LaVezzi Machine Works, 4635 W. Lake St., Chicago 44, Ill. EStorbrook 8-1636
(See advertisement on page 93)

Lavoie Laboratories, Inc., Matawan-Freehold Road, Rte. 79, Morganville, N. J. LOwell 6-2600
(See advertisement on page 100)

Leach Corp., 18435 Susana Road, Comtpon, Calif NEvada 6-1061

Leach Relay Div., see Leach Corp.

Lear Inc., Lear-Romec Div., Abbe Rd., Elyria, Ohio FAirfax 3-3211

Lebrow Associates, Inc., 14857 W. Eleven Mile Rd., Oak Park, 37, Mich., JO 4-6684

Ledeen Inc., 3350 No. Gilman Rd., El Monte, Calif. CUmberland 3-3163

Ledex Inc., 123 Webster St., Dayton 2, Ohio, BA 4-9891

Lee Spring Co., Div. of Leetronics Inc., 30 Main St. Brooklyn 1, N. Y. ULster 5-7163

Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Pa. DAvenport 9-4900

Leemath Incorporated, Oak Drive, Syosset, N. Y. WAlnut 1-3080

Leesona Corp., P. O. Box 6088, Providence 4, R. I., WIlliams 1-5200

Leesona Corp., Patterson Moos Research Div., 90-28 Van Wyck Expressway, Jamaica 18, N. Y., AXtel 7-4400

Leetronics, Inc., 30 Main St., Brooklyn 1, N. Y. ULster 5-7163

Leiman Bros., Inc., P. O. Box 1339 146-181 Christie St., Newark 1, N. J. MA-3-7520

Lel, Inc., 75 Akron St., Copiague, N. Y., AMityville 4-2200

Lenox Instrument Co., 2010 Chancellor St., Philadelphia 3, Pa. LOcust 8-6611

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15	35	55	75	95	115	135	155	175	195	215	235	255	275	295	315	335	355	375	395
16	36	56	76	96	116	136	156	176	196	216	236	256	276	296	316	336	356	376	396
17	37	57	77	97	117	137	157	177	197	217	237	257	277	297	317	337	357	377	397
18	38	58	78	98	118	138	158	178	198	218	238	258	278	298	318	338	358	378	398
19	39	59	79	99	119	139	159	179	199	219	239	259	279	299	319	339	359	379	399
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16	36	56	76	96	116	136	156	176	196	216	236	256	276	296	316	336	356	376	396
17	37	57	77	97	117	137	157	177	197	217	237	257	277	297	317	337	357	377	397
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Lepel High Frequency Laboratories, Inc., 54-18 37th Ave., Woodside 77, N. Y. HAvemeyer 6-4580
(See advertisement on page 195)

Lerco Division Microdot Inc., 501 So. Varney St., Burbank, Calif. VIctoria 9-5556

Lerma Engineering Corporation, 53 Clark Ave., Northampton, Mass. JUstice 4-9356

Leroy M. E. Clausing Co., 8038 Monticello Ave. Skokie, Ill. Chicago Tel. COrnelia 7-3399

Leslie Co., 532 Delafield Ave., Lyndhurst, N. J. GEneva 8-8000
(See advertisement on page 76)

Lessells & Asso., Inc., 916 Commonwealth Ave., Boston 15, Mass., BEacon 2-2380

Leupold & Stevens Instruments Inc., 4445 N. E. Glisan St., Portland 13, Ore., BE 4-7423

Levin & Son, Louis, 3573 Hayden Ave., Culver City, Calif.

Levy & Co., Inc., Max, Wayne Ave. & Berkeley St., Philadelphia 44, Pa. DA-9-7675
(See advertisement on page 199)

Lewis Engineering Co., 339 Church St., Naugatuck, Conn. PArk 9-5253
(See advertisement on page 71)

Lewis and Kaufman, Ltd., 17320 El Rancho Ave., Los Gatos, California. ELgato 4-3540

Lewis Instruments Inc., P. O. Box 397, 525 Locust St., Lockport, N. Y., HF 3-9135

Lexington Controls Inc., Blanchard Road, Burlington, Mass. BR-2-2100, MI-3-9000

Librascope Division-General Precision, Inc., 808 Western Ave., Glendale 1, Calif. CItrus 4-6541

Licon Division, Illinois Tool Works, 6615 W. Irving Park Rd., Chicago 34, Ill. AV 2-4040

Lignum-Vitae Products Corp., 96-IP Boyd Ave., Jersey City 4, N. J. HE-3-3027-8

Lind Instruments, Inc., 2294 Mora Dr. Mt. View, Calif., YO 8-0083

Lindberg Engineering Co., 2450 W. Hubbard St., Chicago 12, Ill.

Linear Controls Co., 3400 Main, Skokie, Ill. ORchard 6-1667

Linemaster Switch Corp., Woodstock, Conn., Walnut 8-6538

Ling Electronics Div. of Ling-Altec Electronics, 1515 South Manchester, Anaheim, Calif. PRospect 4-2700

Link Div—General Precision, Inc., Binghamton, N. Y. RA 3-9311

Liquidometer Corp., Industrial Div., 41-03 36th St., Long Island City 1, N. Y. STillwell 4-1440
(See advertisement on page 39)

Lisk Co., Inc., G. W., Clifton Springs, N. Y.

Littelfuse, Inc., 1865 Miner St., Des Plaines, Ill. VA 4-1188

Little Falls Alloys, Inc., 189 Caldwell Ave., Paterson 1, N. J.

Litton Systems, Inc., 336 N. Foothill Rd., Beverly Hills, Calif., CR 4-7411 BR 2-0661

Lockheed Electronics Co., U. S. Highway 22, Plainfield, N. J., PLainfield 7-1600

Lockwood & McLorie, Inc., P. O. Box 113, Horsham, Penna. OSborne 5-8718

Loe Engineering Co., 2092 North Lincoln, Pasadena, Calif. SY-6-6594 and MU-1-0538
(See advertisement on pages 77, 130)

Logan Engineering Co. 4901 W. Lawrence Ave., Chicago 30, Ill. PE-6-7500

Long-Lok Eastern Corp., 68 Urban Ave., Westbury L. I., N. Y., EDgewood 4-1854

Loral Electronics Corp., 825 Bronx River Ave., N. Y. 72, N. Y. TIvoli 2-9500

Lord Manufacturing Co., 1635 W. 12th St., Erie, Pa. GLendale 6-8511

Los Angeles Scientific Instrument Co., 2451 Riverside Dr., Los Angeles 39, Calif. NO-2-2128

Lourdes Instrument Corp., 656-678 Montauk Ave., Brooklyn 8, New York

Lovejoy Flexible Coupling Co., 4843 W. Lake St., Chicago 44, Ill. ES-9-3010

Lucifer Furnaces, Inc., 374 Easton Road, Neshaminy, Pa. DIamond 3-0411

Ludlow Papers, Needham Heights 94, Mass. Hillcrest 4-4900
(See advertisement on page 157)

Lufkin Rule Company, 1730 Hess Street, Saginaw, Mich. PLeasant 2-2141

Luma Electric Equipment Co., 1607 Coining Dr., Toledo 12, Ohio GReenwood 5-4168

Lumatron Electronics, Inc., 116 County Courthouse Road, New Hyde Park L. I., N. Y. PIoneer 7-3200

Lundell & Co., 7730 S. Stony Island Ave., Chicago, Ill. HY-3-3700

Lundy Manufacturing Corp., Robert Lane, Glen Head, N. Y. ORiole 6-1440

Luxo Lamp Corp., Dock St., Port Chester, N. Y. WEstmore 7-4433
(See advertisement on page 170)

Lynch Communication Systems Inc., 695 Bryant St., San Francisco 7, Calif. EXbrook 7-1471

Lynn, Robert M., 319 N. Rolyn Place, Arcadia, Calif. HIllcrest 7-3200

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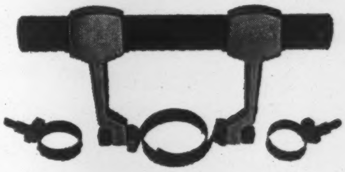

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M-H (see Minneapolis-Honeywell)

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(See advertisement on page 156)

M & Q Plastic Prouducts, 12 Bannard St., Freehold, N. J. HOpkins 2-6663

MSA Research Corp., Callery, Pa. Evans City 3510

Macarr, Inc., 4360 Bullard Ave., N. Y. 66, N. Y., FA 5-5510

Macbeth Corporation, P. O. Box 950, Newburgh, N. Y. JO-1-7300

Machinery Electrification, Inc., 56 Hudson St., Northboro, Mass. EXeter 3-2461

Machlett Laboratories, Inc., 1063 Hope Street, Springdale, Conn. Fireside 8-7511

Mack Electric Devices, Inc., 38 Glenside Ave., Wyncote, Pa. TUrner 4-8123
(See advertisement on page 174)

MacLaren & Co., F. B., 15 Stepar Place, Huntington Station, New York. HA 3-4433

MacLeod Instrument Corp., 4250 N. W. 10th Ave., Fort Lauderdale, Fla., LOgan 4-8518

Madden Corporation., 1345 W. Jarvis Avenue, Chicago 26, Ill. BR-4-3800

Magnaflux Corp., 7328 Lawrence Ave., Chicago 31, Ill. UNderhill 7-8000

Magnasync Corp., 5546 Satsuma Ave., No. Hollywood, Calif. TR 7-5493

Magnavox Co., Research Labs., 2829 Maricopa St. Torrance, Calif. BR 2-0347

Magnecraft Electric Co., 3352 W. Grand Ave., Chicago 51, Ill. EVerglade 4-6868

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Joseph E. Cuesta & Company
20 South Valley Rd., Paoli, Penna.

Magnetic Controls Company, 6405 Cambridge Street, Minneapolis 26, Minn. WEst 9-4691

Magnetic Devices, Inc., 712 East, Frederick, Md. Mo 2-2144

Magnetic Instruments Co., Inc., 637 Commerce St., Thornwood, N. Y. RO 9-5312

Magnetic Metals Co., Hayes Ave. at 21st St., Camden 1 N. J., WOodlawn 4-7842

Magnetic Research Corp., 3160 W. El Segundo Blvd., Hawthorne, Calif. OSborne 5-1171

Magnetic Shield Div., Perfection Mica Co., 1322 N. Elston Ave., Chicago 22, Ill. EVerglade 4-2122
(See advertisement on page 167)

Magnetico, Inc. TA Div., 6 Richter Court, E. Northport, N. Y. ANdrew 1-4502

Magnetics Inc., Butler, Pa., 7-3787

Magnetrol, Inc., 2110 So. Marshall Blvd., Chicago 23, Ill. Bishop 7-4000
(See advertisement on page 38)

Mahr Gage Co. Inc., 274 Lafayette St., N. Y. 12, N. Y., WOrth 6-3277

Main & Sons Inc., Robt. A., 461 W. Main St., Wyckoff, N. J.

Malco Manufacturing Co., 4025 West Lake St., Chicago 24, Ill. VAn Buren 6-9300

Mallory & Co., P. R. 3029 E. Washington St., Indianapolis 6, Ind. MElrose 6-5353

Mandex Mfg. Co. Inc., 2614 W. 48th St., Chicago 32, Ill. CLiffside 4-4200

Mann Company, David W., Div. of Geophysics Corp. of America, Box P, Lincoln, Mass. CLearwater 9-8015

Manning, Maxwell & Moore, Inc., 250 E. Main St., Stratford, Conn. DRexel 8-8281

Manostat Corp., 26 N. Moore St., New York 13, N. Y.

Mansfield & Green, Inc, 6185 Cochran Rd., Cleveland 39, Ohio MAin 1-7565
(See advertisement on page 52)

Manson Laboratories, Inc., 375 Fairfield Ave., Stamford, Conn. DAvis 5-1391

Manufacturers Engrg. & Equip. Corp., York Rd. & Sunset Lane, Hatboro, Penna. OSborne 5-3300

Marathon Battery Co., 840 Henrietta St., P. O. Box 298 Wausau, Wis. VI-2-2025

Marathon Electric Mfg. Corp., Wausau, Wis. VIking 2-2011

Marathon Special Products Corp., 1201 West 12th St., Erie, Pa. GL-2-2004

Marco Industries Company, 207 So. Helena St., Anaheim, Calif. KEystone 5-6037

Marconi Instruments, Div. of English Electric Corp. 111 Cedar Lane, Englewood, N. J. LO-7-0607-8-9

Mark-Tex Corp., 453 W. 17th St., New York 33, N. Y. WAtkins 9-1811

Markal Co., 3052 W. Carroll Ave., Chicago 12, Ill., SA 2-6085

Markel & Sons, L. Frank, School Lane, Norristown, Pa., BRoadway 2-8960

Markite Corp., 155 Waverly Place, N. Y. 14, N. Y., ORegon 5-1384

Marlin-Rockwell Corporation, 402 Chandler St., Jamestown, N. Y. Telephone 61-541

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Marquardt Corp., Pomona Div., 2709 N. Garey Ave., Pomona, Calif. LYcoming 3-1311

Marsco Mfg. Co., 2901 South Halsted Street, Chicago 8, Ill. DAnube 6-4710

Marsh Instrument Co., 3501 Howard St., Skokie, Ill. Orchard 3-4300
(See advertisement on page 46)

Marshall Co., L. H., Station B, Columbus 2, Ohio AX 9-4159

Marshall Instruments Inc., 14203 Bessemer St., Van Nuys, Calif. STate 2-4014

Marshalltown Mfg. Co., 800 E. Nevada St., Marshalltown 3, Iowa Telephone 4461
(See advertisement on page 46)

The Martin Co., Baltimore 3, Md., MUrdock 7-3800

Martin & Co., H. S., 1916 Greenleaf St., Evanston, Ill. GR 5-0707

Martin Engineering Co., Neponset, Ill. Telephone 3311

Martin-Decker Corporation, 3431 Cherry Avenue, Long Beach 7, Calif. GArfield 4-1696
(See advertisement on page 53)

Martindale Electric Co., 1360 Hird Ave., Cleveland 7, Ohio LAkewood 1-8567

Marx Co., Clarence J., 164 East 199th St., Cleveland 19, Ohio KEnmore 1-8952
(See advertisement on page 59)

Maryland Telecommunications, Inc., 10 Winters Lane, Baltimore 28, Maryland RI 7-2550
(See advertisement on page 61)

Mason Instrument Company, P. O. Box 1681, GPO, New York City 1, N. Y. MOunt Vernon 4-3069
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(See advertisement on pages 20, 21)

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Mast Development Co., Inc., 2212 E. 12th St., Davenport 30, Iowa. Telephone 3-9729

Master Specialties Co., 956 East 108th St., Los Angeles 59, Calif. LOrain 4-4481

Mastercraft Instrument Com any, 1598 McPoland Ave., Dubuque, Iowa

Materials Electronic, Products Corp., 990 Spruce St., Trenton 8, N. J. EXport 4-9600

Matthews & Co., Jas. H. 3942 Forbes Ave., Pitts burgh 13, Penna. MUseum 1-8500

Maurer, Inc., J. A., 37-01 31 Street, Long Island City 1, N. Y. STillwell 4-4600

Maxon Premix Burner Co., 201 E. 18th St., Muncie Ind., AT 4-3304

Maxson Electronics Corp., 475 Tenth Ave., New York 18, N. Y. LOngacre 5-1900

Mayer Co., Inc., Geo. J., 546 E. Market St., Indianapolis 9, Ind. MElrose 6-6422
(See advertisement on page 170)

McAlear Mfg. Co., 1901 S. Western Ave., Chicago, Ill.
Pittsburgh and Buffalo Representatives
M. S. Jacobs & Associates, Inc.
810 Noblestown Rd., Pittsburgh 5. WAlnut 2-4212
1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229

McCoy Electronics Co., Chestnut and Watts St., Mount Holly Springs, Penna. HUnter 6-3411

McDanel Refractory Porcelain Co., 510 9th Ave., Beaver Falls, Pa. TIlden 3-8300

McDonnell & Miller, Inc., 3500 N. Spaulding Ave., Chicago 18, Ill. COrnelia 7-1600

McGill Manufacturing Co. Inc., N. Campbell St., Valparaiso, Ind., HOward 2-2161

McHugh & Son, Raymond F., Box 6025, Philadelphia 14, Pa. MA 4-8009

McIlvaine, O. T., 15 So. First St., Geneva, Ill. GEneva 7150

McIntosh Equipment Corp., Walker Crosweller Div., 21 Park Row, New York 38, N. Y. DIgby 9-3288

McKenna Laboratories, 2503 Main St., Santa Monica, Calif. EXbrook 9-8846

McLean Engineering Laboratories, 70 Washington Road, P. O. Box 228, Princeton, N. J. WAlnut 4-4440

McMillan Companies, Brownville Ave., Ipswich, Mass., ELmwood 6-2926

Measurements, A Mc-Graw-Edison Co. Division, Box 180, Boonton, N. J.
(See advertisement on page 109)

Measurements Research Co., 3801 Castor Ave., Philadelphia 24. Pa. JEfferson 5-0911

Mechanical Products Corporation, 1716 W. Hubbard St., Chicago 22, Ill. CAnal 6-7750

Mechanical Products, Inc., 1824 River St., Jackson, Mich. STate 2-0391

Mechrolab, Inc., 1062 Linda Vista, Mountain View, Calif., YO 7-5796

Med-Tronics Mfg. Co. Inc., 1845 Westchester Avenue, Bronx 72, N. Y. TA-4-2190

Mefco Sales & Service, Inc., 131 North Fifth Ave., Arcadia, Calif. ELliott 9-6130

Megadyne Electronics, Inc., 189 No. Main St., Port Chester, N. Y. WEstmore 9-3660

Meikle Manufacturing Co., 1335 So. MacArthur Blvd., Springfield, Ill. Telephone 2-1680

Melabs, 3300 Hillview Ave., Stanford Ind. Park, Palo Alto, Calif., DAvenport 6-9500

Melcor Electronics Corp;, 48 Toledo St. Farmingdale, N. Y. MYrtle 4-5570

Melpar Inc., Special Prods. Dept., 3000 Arlington Blvd. Falls Church, Va. JEfferson 4-6000

Meltron Corporation, 950 North Highland Avenue, Los Anglees 38, Calif. HOllywood 3-4841

Mepco, Inc., 35-37 Abbett Avenue, Morristown, N. J. JEfferson 9-2000

Mercoid Corp., 4201 Belmont, Chicago 41, Ill. PEnsacola 6-2100
(See advertisement on page 183)

Mercury Contacts, Inc., 1950 Neva Drive, Dayton 14, Ohio CRestview 8-4719

Mercury Transformer Corp 12964 Panama Street, Culver City, Calif. UPton 0-8380

Meriam Instrument Co., 10920 Madison Ave., Cleveland 2, Oh.o, ATlantic 1-1100
(See advertisement on pages 32, 41)

Merit Coil & Transformer Corp., 2027 Sherman Street, Hollywood, Fla. WAbash 3-1536

Merit Specialties Co., Inc., 205 E. Davis St., Dept. IC, St. Louis 11, Missouri

Merkle-Korff Gear Co., 213 North Morgan Street, Chicago 7, Ill. MOnroe 6-1900

Merz Engineering, Inc., 200 So. Harding St., Indianapolis 7, Ind. MElrose 2-7431

Met-L-Chek Flaw-Finder Co 11919 So. Western Ave., Los Angeles, Calif., TL 4-3167

Metalab Equipment Co., Duffey Ave., Hicksville, L. I., N. Y.

Metalphoto Corp., 6811 Superior Ave., Cleveland 3, Ohio UTah 1-7575

Metals & Controls Inc., Div. of Texas Instruments Incorporated 34 Forest St., Attleboro, Mass.

Metalsalts Corp., 200 Wagaraw Road, Hawthorne, N. J. PE 6-2626

Metavac, Inc., 45-68 162nd St., Flushing 58, N. Y. Hickory 5-0400
(See advertisement on page 181)

Meters Inc., 5353 N. Keystone Ave., Indianapolis 20, Ind. CLifford 5-3570

Methods Research Corp., 105 Willow Avenue, Statten Island 5, N. Y.

Metron Instrument Co., 5300 So. Delaware St. Littleton, Colo. PEarl 3-3764

Metronix, Inc., 75 Wilson Mills Road, Chesterland, Ohio, HAmilton 3-4440

Mettler Instrument Corp., Highstown, N. J.
(See advertisement on page 86)

Metzger Company, Claude, 635 Madison Avenue, New York 22, New York PLaza 5-0285

Metzger & Son, F. F., 2600 N. 6th St., Philadelphia 33, Pa. BA 9-3161

Mic-Lin Co., Rt. 38, Maple Shade, N. J., No. 3-5930 or NO 3-9150

Mica Insulator Division of Minnesota Mining & Mfg. Co., 797 Broadway, Schenectady 1, N. Y. FRanklin 4-4191

Mico Instrument Co., 80 Trowbridge St., Cambridge 38, Mass. KI 7-8660

Michigan Precision Swiss Parts Co., Dept. A, 2312 Grayson Avenue, Ferndale 20, Mich. LIncoln 3-8971

Micro Balancing, Inc., 191 Herricks Road, Garden City Park, L. I., N. Y. PI 6-0851

Micro Gee Products, Inc., 6391 W. Slauson Ave., P. O. Box 1005 Culver City, Calif. EXmont 1-6719

Microchemical Specialties Co., 1825 Eastshore Highway, Berkeley 10, Calif. Thornwall 3-1282

Micro-Circuits Co., New Buffalo, Mich. Telephone 1163

Microdot, Inc., 220 Pasadena Ave., So. Pasadena, Calif. RYan 1-3351

Micro-Lectric Division, Micro Machine Works, Inc., 19 Debevoise Avenue, Roosevelt, L. I., N. Y. FReeport 8-3222

Microlectron, Inc., 1547 18th St., Santa Monica Calif., EXbrook 3-0356

Micromat Co., 548 Piermont Ave., Hillsdale, N. J.

Micrometrical Manufacturing Co., 3621 State Rd. P. O. Box 1067 Ann Arbor, Mich. NOrmandy 2-5626

Micronics Div., Elgin National Watch Co., 366 Bluff City Blvd., Elgin, Ill. SHerwood 2-5700

Microphase Corp., River Rd., Cos Cob, Conn. (P. O. Box 1166 Greenwich, Conn.) NOrmandy 1-6200

Microsonics Inc., 349 Lincoln St., Bldg. 29 Hingham, Mass. RI 9-3100

Micro Surface Engr. Co., 1560 E. Slauson Ave., Los Angeles 11, Calif., LU 2-7348

Micro Systems, Inc., 319 Agostino Road, San Gabriel, California
Rep—E. Pa., S. N. J., Dela., Md., D. C. Va.
Polymetric Devices Company
130 S. Easton Rd., Glenside, Pa. TU 7-9610
933 Gist St., Silver Spring, Md. Tel: 585-9230

Mircotech Division, Federal-Mogul-Bower Bearings, Inc., 1201 N. Arden Drive, El Monte, Calif. GIlbert 3-3081

Microtech Services Co., 775 Sunshine Drive, Los Altos, Calif. YOrkshire 8-4708

Micro-Test, Inc., 1718 21st Street, Santa Monica, Calif.

Microtran Co., Inc., 145 E. Mineola Ave., Valley Stream, N. Y. LO-1-6050

Microwave Associates, Inc., South Ave., Burlington, Mass. BRowing 2-3000

Microwave Development Laboratories, Inc., 101 Strathmore Rd. Natick Ind. Center, Natick, Mass. CEdar 5-6252

Midwest Automatic, Inc., 510 3rd Street, Des Moines 9, Iowa CH-4-3103

Mid-West Instrument Division, Astra Associates, Inc., 1021 E. State Fair Ave., Detroit 3, Mich TWinbrook 3-8250
(See advertisement on page 51)

Midwestern Instruments, P. O. Box 7186, Tulsa 18, Okla. RIverside 7-1331
(See advertisement on page 92)

Mikros, Inc., 7620 SW Macadam Ave., Portland 19, Ore. CH 6-6122

Milgo Electronic Corp., 7601 NW 36th Ave., Miami 47, Fla. OX 1-1220

Military Products Division, Hoffman Electronics Corp., 3740 So. Grand Ave., Los Angeles 7, Calif. RIchwood 7-4488

Military Systems/Stavid Division, Lockheed Electronics Co., U. S. Highway 22, Plainfield, N. J. PL 7-1600

Millen Mfg. Co., James, Inc., 150 Exchange St., Malden 48, Mass. DAvenport 4-4108

Miller Co., J. W., 5917 S. Main St., Los Angeles 3, Calif., ADams 3-4294

Miller Company, L. C., 717 Monterey Pass Road, Monterey Park, Calif. Angelus 8-3611

Miller Electric Co., 120 Main St., Pawtucket, R. I., PA 5-0420

Miller-Harris Instrument Co., 1134 So. First Street, Milwaukee 4, Wisc. EVergreen 3-7256

Miller Labs, August E., 9226 Hudson Blvd., North Bergen, N. J.

Miller Falls Co., 57 Wells St., Greenfield, Mass. PR 3-5426

Millipore Filter Corp., Bedford, Mass., Crestview 4-8800

Millitest Corporation, 88 Madison Avenue, Hempstead, Long Island, N. Y. IVanhoe 9-9672

Millivac Instruments Inc., P. O. Box 997, Schenectady, N. Y. Elgin 5-6550

Milman Engineering Co. Inc., 11162 Santa Monica Blvd., Los Angeles 25, Calif. GRanite 3-0616

Milro Controls Co. Inc., 280 Midland Ave., Saddle Brook, N. J. SWarthmore 1-1850

Milton Ross Metals Co., 239 Jacksonville Rd., Hatboro, Pa. OSbourne 2-0550

Milton Roy Company, 1300 Mermaid Lane, Philadelphia 18, Pa. CHestnut Hill 7-8000

Minarik Electric Co., 224 E. Third St., Los Angeles 13, Calif. MAdison 4-3161

Minco Products, Inc., 740 Washington Ave., N., Minneapolis 1, Minn. FEderal 8-6753

Mincom Div. Minn. Minning & Mfg. Co., 2049 S. Barrington Ave., Los Angeles 25, Calif. BRadshaw 2-9971 or GRanite 9-3751

Mine Saftey Appliances Co., 201 N. Bnaddock Ave., Pittsburgh 8, Pa. CH 1-5900
(See advertisement on page 34)

Miniature Electronic Components Corporation, 21 Plymouth Street, Holbrook, Mass. WOodlawn 3-7717

Miniature Precision Bearings, Inc., Precision Park, Keene, N. H. EL-2-1888

Minneapolis Electric & Construction Co., 80 S. 12th St., Minneapolis 3, Minn. FE 2-0946

Minneapolis-Honeywell Regulator Co., Apparatus Controls Div., (formerly, Industrial Controls Div) 2753 Fourth Ave. S., Minneapolis 8, Minn. FEderal 2-5225

Minneapolis-Honeywell Regulator Co., Boston Div., 40 Life St., Boston 35, Mass. AL-4-5200

Minneapolis-Honeywell Regulator Co., Brown Instruments Div., Wayne & Windrim Aves., Philadelphia 44, Pa. DAvenport 9-8300

Minneapolis-Honeywell Regulator Co., Ceramics Laboratory, 1885 Douglas Drive N. Minneapolis 22, Minn. LIberty 5-1661

Minneapolis-Honeywell Regulator Co., Electronic Data Processing Div., 60 Walnut St., Wellesley Hills 81, Mass. CEdar 5-7450

Minneapolis-Honeywell Regulator Co., Fall River Div., 21 Penn St., Fall River, Mass. OSborne 8-8331

Minneapolis-Honeywell Regulator Co., Heiland Div., 5200 E. Evans Ave., Denver 22, Colo. SKyline 6-3681

Minneapolis-Honeywell Regulator Co., Industrial Products Group, Wayne & Windrim Aves., Philadelphia 44, Pa.
(See advertisement on Front and Back Covers)

Minneapolis-Honeywell Regulator Co., Industrial Systems Div., 10721 Hanna St., Beltsville, Md. GRanite 4-6700

Minneapolis-Honeywell Regulator Co., Micro Switch Div., 11 W. Spring St., Freeport, Ill. ADams 2-1122

Minneapolis-Honeywell Regulator Co., Military Products Group, 2753 4th Ave. So., Minneapolis, Minn.

Minneapolis-Honeywell Regulator Co., Precision Meter Div., Grenier Field, Manchester, N. H. NAtional 5-6971

Minneapolis-Honeywell Regulator Co., Rubicon Div., Ridge Ave. at 35th St., Philadelphia 29, Pa. BAldwin 5-3737

Minneapolis-Honeywell Regulator Co., Semiconductor Products Div., 1015 South 6th St., Minneapolis 4, Minn. Federal 2-5225

Minneapolis-Honeywell Regulator Co., Special Systems Div., Queen & So. Bailey, Pottstown, Pa. MA 7-6792

Minneapolis-Honeywell Regulator Co., Valve Div., 300 Commerce Dr., Fort Washington, Pa. MItchell 6-1780

Minnesota Mining & Mfg. Co., Magnetic Products Div., 900 Bush Ave., St. Paul 6, Minn. PRospect 6-8511

Mira Corp., 2656 N. Pasadena Ave., Los Angeles 31, Calif., CApitol 1-1129

Missile Systems Corp., 11949 Vose St., North Hollywood, Calif., POplar 5-9041

Missimers Incorporated, 3737 San Fernando Road, Glendale 4, Calif. CHapman 5-8471

Missouri Research Labs., Inc., 2109 Locust St., St. Louis 3, Mo. CHestnut 1-7875

Mitchell Camera Corp., 666 West Harvard St., Glendale 4, Calif. CHapman 5-1085

Mitchell Industries, Inc., P. O. Box 17, Mineral Wells, Tex., FA 5-2517 or 2518

Mitchell Radiation Products Corp., East Washington St., P. O. Box 857, Norristown, Pa. BRoadway 9-4847

Mixing Equipment Co., Inc., 135 Mt. Read Blvd., P. O. Box 1370, Rochester 11, N. Y. ID 6-5550

Mnemotron Corp., 45 South Main Street, Pearl River, New York

Model Engrg. & Mfg., Inc., 50 Frederick St., Huntington, Ind. Telephone 104

Model Rectifier Corp., 1675 Utica Ave., Brooklyn 34, N. Y. CLoverdale 8-6800

Modelectric Products Corp., Asbury Park, N. J.

Modern Industries, Inc., 5755 Camille Ave., Culver City, Calif. TExas 0-2020

Modern Laboratory Equipment Co., Inc., 1809-11 First Ave., New York 28, N. Y. TR 6-4700

Modernair Corporation, 400 Preda Street, San Leandro, Calif. LO-2-6485

Moeller Instrument Co., 132 St. & 89th Ave., Richmond Hill 18, N. Y. Virginia 9-2100
(See advertisement on page 70)

Moisture Register Company, 1510 West Chestnut Street, Alhambra, California CUmberland 3-3143

Molded Insulation Co., 335 E. Price St., Philadelphia 44, Penna., VIctor 4-2626

Molex Products Co., 9515 Southview Ave., Brookfield, Ill. HUnter 5-5881

Mona Industries Inc., Paterson 17, N. J.,

Monitor Controller Div., Atlee Corp., 99 Grove St., Rockland Mass. TRiangle 8-3308

Monitor Systems Inc., Fort Washington Industrial Park, Fort Washington, Pa. MI-68100

Monroe Calculating Machine Co., Electronics Components Div., 60 Main St., San Francisco 5, Calif. DO 2-7328

Monroe Calculating Machine Co., Div. of Litton Industries, 555 Mitchell St., Orange, N. J. OR 3-6600

Monsell Co., John R., Warrick Ave., Glassboro, N. J., TUlip 1-2905

Montgomery Mfg. Co., 204 S. Main, Owensville, Ind. SAratoga 4-2505

Moog Servocontrols, Inc., Proner Airport, E. Aurora, N. Y. CYpress 2000

Moore Associates, Inc., 2600 Spring St., Redwood City, Calif. EMerson 9-6784

California Representative
Luscombe Engineering Co.
1020 S. Arroyo Parkway, Pasadena, Calif.
MUrray 2-3386

Moore & Co., Samuel, Dekoron Products Div., Main & Orchard St., Mantua, Ohio CRestwood 4-2276
(See advertisement on page 203)

Moore Products Co., H & Lycoming Sts., Philadelphia 24, Pa. JE 3-3500

Morehouse Machine Co., 1742 Sixth Ave., York, Penna. Telephone 81332

Morris Co., J. I., 39 Elm St., Southbridge, Mass. POrter 4-4394

Morse Chain Co., So. Aurora St., Ithaca, N. Y., 4-5471

Moseley Co., F. L., 409 N. Fair Oaks Ave., Pasadena, Calif. SYcamore 2-1176

Moser Jewel Co., 544 Fayette St., Perth Ambey, N. J. Hillcrest 2-3434
(See advertisement on page 166)

Mossman, Inc., Donald P., P. O. Box 265, Brewster, N. Y. BRewster 9-3725

Motech Co., P. O. Box 6009, Kansas City 10, Mo. LOgan 1-0202
(See advertisement on page 66)

Motorola Inc., Solid State Controls 3102 North 56th St. Phoenix, Arizona

Motorola Communications & Electronics, Inc., 4501 W. Augusta, Chicago 51, Ill. SP 2-6500

Motorola Semiconductor Products Inc., 5005 E. McDowell Rd., Phoenix, Arizona BRidge 5-4411

Motson Co., J. Frank, 1717 Bethlehem Pike, Flourtown, Pa. CHestnut Hill 7-1900

Mucon Corp., 9 St. Francis St., Newark 5, N. J. MI-2-1476

Mueller Co., 512 W. Cerro Gordo St., Decatur, Ill. Telephone 3-4471

Mueller Electric Co., 1583 E. 31st St., Cleveland 14, Ohio, PRospect 1-5225

Muirhead Instruments, Inc., 441 Lexington Ave., New York 17, N. Y. MUrray Hill 2-8131

Multi-Amp Corp., 61 Mytrle St. Cranford, N. J. MUrdock 8-7112

Murphy Mfg. Inc., Frank W., 3137 S. Sheridan, Tulsa 24, Okla. TE 8-3387

Murphy & Miller, Inc., 620 W. Taylor St., Chicago 7, Ill. HArrison 7-8900

Mycalex Corporation of America, 125 Clifton Blvd., Clifton, N. J. PR-9-8866

N

NICAD Div, Gould-National Batteries, Inc., 172 Pleasant St., Easthampton, Mass., EAsthampton 1200

NJE Corporation, 20 Boright Ave., Kenilworth, N. J. Bridge 2-6000

N/P Company, P. O. Box 127, Temple City, Calif. ATlantic 7-9223

NRC Equipment Corp., 160 Charlemont St., Newton 61, Mass. DE-2-5800

Nacimco Products, Microdot Inc, 1090 Morena Boulevard, San Diego 10, Calif. BRowning 6-3020

Nanmac Corp., 55 Glymont Road, Indian Head, Md. Riverside 82011
(See advertisement on page 68)

Narda Microwave Corporation, 118 Herricks Road, Mineola, N. Y. Pioneer 6-4650

Nash Controls, Inc. (Sales Outlet for Nash Tool & Engineering Inc.), 69-73 Summit St., Newark, N. J. (MI-2-7918)- (MI-2-7298)

Nash Engineering Co., Wilson Ave., Norwalk, Conn. VOlunteer 6-3351

Natel Engineering Co. Inc., 15922 Strathern Street, Van Nuys, Calif. STate 2-4161

National Appliance Co., 7634 S. W. Capitol Hwy., Portland 19, Ore. CHerry 6-3316

National Carbon Co., Div. of Union Carbide Corp., 270 Park Ave. New York 17, N. Y. MUrray Hill 7-8000

National Cash Register Company, Main & K Streets, Dayton 9, Ohio BAldwin 6-1411

National Connector Corp., Science Industry Center, Minneapolis 27, Minn. KEllogg 3-5361

National Electric Controller Co., 7070 Glenwood Ave., Chicago 26, Ill., BR 4-4050

National Electronics Div. of Thiokol Chem. Corp. 1713 Kalorama Rd., Washington 9, DC, HUdson 3-5000

National Electronics Inc., 628 North St., Geneva, Ill. CEnter 2-4300

National Electronics P. O. Box 1237, Sheridan, Wyo. OR-4-7644

National Instrument Co., Inc., 4119-4127 Fordleigh Rd., Baltimore 15, Md. ROgers 4-3304

National Instrument Labs., Inc., 840 Evarts St., N. E., Washington 18, D. C. NOrth 7-7582
(See advertisement on page 28)

National Radiac Inc., 475 Washington St., Newark 2, N. J. MA 3-7524

National Semiconductor Corp., Sugar Hollow Rd., Danbury, Conn. PIoneer 3-7621

National Semiconductors Ltd., 230 Authier Sk., Montreal 9, Canada Riverside 4-2946

National Spectrographic Laboratories, Inc., 6300 Euclid Ave., Cleveland 3, Ohio UTah 1-4664

National Standard Electronics Inc., 2 East End Ave., New York 21, N. Y. RH-4-4100

National Tel-Tronics Corporation, 52 St. Casimir Ave., Yonkers, N. Y. YOnkers 8-6400
(See advertisement on page 165)

National Time & Signal Corp., 21800 Wyoming Ave., Detroit 37, Mich. JOrdan 4-6282

National Ultrasonic Corp., 95 Park Ave., Nutley 10, N. J. NOrth 1-1515

National Vulcanized Fibre Co., Maryland & Beech Sts., Wilmington 99, Del. OLympia 5-6371

Naugler Engineering Inc., 19 Madison Ave., Beverly, Mass., WAlker 2-5634

Navigation Computer Corp., NAVCOR, Valley Forge Industrial Park Norristown, Pa. Glendale 2-6531

Naybor Laboratories, Inc., E. V. 26 Manorhaven Blvd., Port Washington, N. Y. POrt Washington 7-4300

Neff Instrument Corporation, 1088 E. Hamilton Road Duarte, Calif. SY-5-4308

Nelson Vacuum Pump Co., 2133 Fourth St., Berkeley 10 Calif., THornwall 8-2277

Neptune Meter Co., 19 West 50th St., New York 20, N. Y.

Nester Co., L. G., Inc., Buck & Sassafras Sts., P. O. Box 231, Millville, N. J. TAylor 5-0254

Networks Electronic Corp., 9750 De Soto Ave. Chatsworth, Calif. STate 2-3114

Nuetronic Associates, Inc., 32 Tennessee Ave., Hempstead, L. I., N. Y. IV-9-9840

New Brunswick General Sheet Metal Works, 425-33 Cleveland Avenue, Highland Park, N. J. CHarter 9-1470

New Departure Div., General Motors Corp., 269 N. Main St., Bristol, Conn., LUdlow 2-6371

New England Gear Works Inc., South End Road, Southington, Conn.

New England Instrument Company, 39 Green St. Waltham, Mass. TWinbrook 9-8370

New England Transformer Co., Inc., 47 McGrath Highway, Somerville 43, Mass. SOmerset 6-6100

New Hampshire Ball Bearings, Inc., Route 202, Peterborough, N. H. WAlnut 4-3311

New Hermes Engraving Machine Corp., 154 W. 14th St., New York 11, N. Y.
(See advertisement on page 197)

New Jersey Meter Co., Inc., 89 Terminal Ave. Clark, New Jersey Plainfield 6-8010

New London Instrument Co., Inc., 82 Union St., New London, Conn. GIbson 3-8451

New York Transformer Co., Inc., 3rd Ave., Alpha, N. J. GLencourt 4-1143

Newage Industries, Inc., 222 York Rd., Jenkintown 21, Pa. TU 4-8494

Newall Mfg. Co., Inc. Div., 139 N. Wabash Ave., Chicago 2, Ill., CEntral 6-2789

Newark Controls Co., 15 Ward St., Bloomfield, N. J. PIlgrim 8-2971

Newark Electronics Corp., Dept. BG-61, 223 W. Madison St., Chicago 6, Ill.
(See advertisement on page 177)

Newark Wire Cloth Co., 351 Verona Ave., Newark 4, N. J. HUmboldt 3-7700

Newman Corp., M. M. 79 Clifton Ave., Marblehead, Mass. NEptune 2-0637

Newport Scientific Co., Nesco Ins. Div., 638 W. 17th St., Costa Mesa, Calif., KI 9-0311

Newton Co., 55 Elm St., Manchester, Conn., MItchell 3-1543

Ney Co., J. M. Maplewood Ave., Bloomfield, Conn. CHapel 2-2281

Niagara Frontier Division, Bell Aerosystems Co. P. O. Box 1, Buffalo 5, N. Y. BUtler 5-7851 (Niagara Falls)

Nicholson and Co., W. H., 12 Oregon St., Wilkes-Barre, Pa. VAlley 4-8701

Nilsen Mfg. Co., 920 Highway 27 N. (P. O. Box 127) Haines City, Fla. HAmilton 2-1197

Nippert Electric Products Co., 1759 W. Mound St., Columbus 23, Ohio, 274-1114

Non-Linear Systems, Inc., P. O. Box 728, Del Mar, Calif. SKyline 5-1134

Norbatrol Electronics Corp., 356 Collins Ave., Pittsburgh 6, Pa. EMerson 2-2020

Norcross Corp., 247 Newtonville Ave., Newton 58, Mass. DEcatur 2-2410
(See advertisement on page 85)

Norden Division of United Aircraft Corp., Jericho Turnpike., Commak, N. Y. FOrest 8-5500

Norgren Company, C. A., 3400 South Elati, Englewood, Colo. SUnset 1-5583

Normandy Electric Wire Corp., 126 Second Ave., Brooklyn 31 N. Y.,

North American Electronics, Inc., 71 Linden St., W. Lynn, Mass. LYnn 8-4800

North American Mfg. Co., 4455 E. 71st St., Cleveland 5, Ohio BRoadway 1-6000

North Atlantic Industries, Inc., Terminal Drive, Plainview, Long Island, N. Y. OVerbrook 1-8600

North Electric Co., 553 So. Market St., Galion, Ohio HO 8-2420

North Hills Electronics, Inc., Alexander Place, Glen Cove, L. I., N. Y. ORiole 1-5700
(See advertisement on page 118)

North Shore Nameplate, A Division of Anodyme Inc., 1270 NW. 165th St., N. Miami Beach, Fla.

Northeast Electronics Corp., P. O. Box 425, Concord, N. H. CApitol 5-6641

Northeast Scientific Corporation, 30 Wetherbee St., Acton, Mass. COlonial 3-7706

Northeastern Engrg., Inc., 25 S. Bedford St., Manchester, N. H. NAtional 2-6485

Northern Radio Company, Inc., 143-149 West 22nd St., New York 11, N. Y. WAtkins 9-9117

Northfield Precision Instrument Corp., 4400 Austin Blvd., Island Park, L. I., N. Y. GEneral 1-1112

Nortronics, Div. of Northrop Corp., 500 E. Orangethorpe Ave., Anatheim, Calif. LAmbert 5-4771

Norwalk Thermostat Co., 100 N. West St., Norwalk, Ohio, Telephone 66-3082-2

Norwood Controls, 934 Washington St., Norwood, Mass. NOrwood 7-4010

Nuclear-Chicago Corp., 333 East Howard Ave., Des Plaines, Ill. VAnderbilt 7-4456

Nuclear Corp. of America, Instr & Research Div., 2 Richwood Place, Denville, N. J. OAkwood 7-4200

Nuclear Development Laboratory, P. O. Box 7034, Kansas City 13, Mo. DElmar 3-7692

Nuclear Electronics Corp., 2925 N. Broad St., Philadelphia 32, Penna. BAldwin 6-2300

Nuclear Materials and Equipment Corp., Apollo, Pa. GRover 2-8411

Nuclear Measurements Corp., 2460 N. Arlington Ave., Indianapolis 18, Ind. LI 6-2415
(See advertisement on page 136)

Nuclear Ohio, Inc., 27105 Knickerbocker Road, Cleveland 40, Ohio TR-1-6295

Nuclear Products Company, 15635 Saranac Road, Cleveland 10, Ohio VL-1-5940

Rep—N. Y. State (except Metro), N. Pa.
The Carl A. Pearson Co., Inc.
232 Winton Rd. N., Rochester 10, N. Y.
BUtler 8-2526

Nucleonic Corp. of America., 196 Degraw St., Brooklyn 31, N. Y. MAin 4-7370

Nucleonic Products Co. Inc., 3133 East 12th St. Los Angeles 23, Calif. ANgelus 8-3464

Nuclide Analysis Asso., 126 N. Atherton St., State College, Pa., AD 8-0514

Nurnburg Scientific Div., Nurnburg Thermometer Co., 124 Livingston St., Brooklyn 1, N. Y. Tri-5-2393

Nutron Mfg. Co. Inc., 25 Brown Ave., Springfield, N. J., DR 6-1831

Nylogrip Products, 570 Pleasant St., Watertown 72, Mass., WAlnut 6-0100

Nylok Corp., 611 Industrial Ave., Paramus, N. J. CO-1-9400

Nylong Molding Corp., 141 South Ave., Garwood, N. J. SUnset 9-1414

O

O. K. Machine & Tool Corp., 551 East 179th St., Bronx 57, N. Y. CYpress 8-0900
(See advertisement on page 132)

O. M. I. Corp. of America, 512 N. Pitt St., Alexandria, Va., KIng 9-4064

OPW—Jordan, Dept. IC, 6013 Wiene Rd., Cincinnati 13, Ohio. EL-1-1352

O & S Research, Inc., 1912 Bannard St., Riverton, N. J., 829-2800 (New Jersey)

Oak Manufacturing Co., 1260 Clybourn Ave., Chicago 10, Ill. MO 4-2222

Offner Electronics, Inc., 3900 River Road, Schiller Park, Ill. GLadstone 1-0050

Ohaus Scale Corp., 1050 Commerce Ave., Union, N. J. MUrdock 8-3400

Ohio Carbon Co., 12508 Berea Rd., Cleveland 11, Ohio. CL 2-6100

Ohio Chemical & Surgical Equipment Co., Div. of Air Reduction Co., Inc., 1400 E. Washington Ave., Madison 10, Wis. ALpine 6-5421

Ohio Semiconductors, Inc., 1035 W. Third Ave., Columbus 8, Ohio AX 4-4938

Ohmart Corp., 4241 Allendorf Drive, Cincinnati 9, Ohio. PA-1-2302

Detroit Representative
Basic Service Corporation
16544 Plymouth Rd., Detroit 27, Mich.
VErmont 7-8820

Ohmite Manufacturing Co., 3601 Howard St., Skokie, Ill. ORchard 5-2600

Oil Well Water Locating Company, 2230 Lemon Ave., Long Beach 6, Calif. GArfield 6-1709

Oilgear Co., 160 Bear Hill Rd. Waltham 59, Mass. TW 4-0489

Okonite Co. Sub. of Kennecott Copper Corp. 220 Passaic Street, Passaic, N. J. Prescott 7-0400

Olympic Instruments, Inc., Vashon, Wash. HOward 3-5641
(See advertisement on page 143)

Omicron Company, P. O. Box 907, Glendale, Calif. VI-9-5007

Opad Electric Co., 43-20 Walker St., New York 13, N. Y. WOrth 6-0380
(See advertisement on page 121)

Operating & Maintenance Specialties, Dept' A, 300 West Third St., P. O. Box 188, Charlotte 1, N. C. FR-5-6079
(See advertisement on page 51)

Ophthos Instrument Co., 9600 Overleg Drive, Rockville, Maryland.
(See advertisement on page 131)

Optical Coating Lab., Inc., 2789 Griffen Ave., Santa Rosa, Calif. LIberty 5-6440

Optics Mfg. Corp., Amber & Willard Sts., Philadelphia 34, Pa. GA 5-3222

Optimized Devices, Inc., 864 Franklin Ave., Thornwood, N. Y. ROgers 9-6110

Opto-Metric Tools Inc., 137 Varick St., New York 13, N. Y. ORegon 5-9076
(See advertisement on page 145)

Optron Laboratory, 2725 Salem Ave. (Box 25 D. V. Sta.), Dayton, Ohio CRestview 4-1898

Orator Chronograph Co. S. A., Box 2097—22922 S. Normandie Ave., Torrance, Calif.

Orbitran Co., Inc., 11487 Woodside Ave., Lakeside, Calif. HIckory 3-6832

Oregon Electronic Mfg. Co., 2105 S. E. 6th Ave. Portland 14, Oregon BElmont 6-9292

Orion Electronic Corp., 108 Columbus Ave., Tuckahoe, N. Y. DE 7-1632

Ortho Filter Corp., 7-11 Patterson St., Paterson 1, N. J. MU 4-5858

Ortho Magnetics, Inc. Industrial Ave., Kutztown, Pa. OVerbrook 3-7307

Oryx Company, 13804 Ventura Blvd., Sherman Oaks, Calif. STate 8-1013 TRiangle 3-4874

Oster Mfg. Co., John, Avionic Div., 1 Main St., Racine, Wis. MElrose 7-4445

Overload Control Co., 151 Pensylvania Ave., Island Park L. I., N. Y., GE 2-1431

Ovitron Corporation, 44-62 Johnes St. Newburgh, N. Y. En-1-1752

Owen Laboratories, Inc., 55 Beacon Place, Pasadena, Calif. MUrray 1-6901

Owens Illinois Glass Co., Tuledo 1, Ohio, CH 2-6543

Oxford Engineering Corp., 47B River Street, Wellesley Hills 81, Mass. CEdar 5-7770

Ozone Research & Equip. Corp., 3480 N. 40th Ave., Phoenix, Arizona. AP 8-5452

P

P. B. R. Manufacturing Co., H & Luzerene Sts., Philadelphia 24, Pa. GArfield 6-0932

PCA Electronics, Inc., 16799 Schoenborn St., Sepulveda, Calif. EMpire 2-0761

P & H Electronics, Inc., 424 Columbia, Lafayette, Ind. SH 2-0361

PIC Automation Controls Div. of General Controls Co., 8080 McCormick Blvd., Skokie, Ill. IRving 8-2323

Detroit Representative
Basic Service Corporation
16544 Plymouth Rd., Detroit 27, Mich.
VErmont 7-8820

PIC Design Corp., 477 Atlantic Ave., East Rockaway, N. Y. LYnbrook 3-6470

P. K. Industries, see General Kinetics

PRD Electronics, Inc., 202 Tillary Street, Brooklyn 1, N. Y. ULster 2-6800

P-W Industries, Inc., 11200 Roosevelt Blvd., Philadelphia 15, Pa.

(See advertisement on page 205, and below)

P-W INDUSTRIES
TUBING & CABLE
SUPPORT SYSTEMS

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ATLANTA 13, Ga.
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Owen C. Jones Co., Inc.
P.O. Box 151
Wellesley Hills 81

CHICAGO, Ill.
J.R. Simpson & Co.
1210 S. 17th Ave.
Maywood, Ill.

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Abernathy-Thomas Eng. Co.
3132 Graymont Drive

DALLAS, Texas
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Process Equipment Co., Inc.
2548 W. 29th Ave.

HOUSTON, Texas
Gay Sales Co., Inc.
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Power Specialties Co.
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KINGSPORT, Tenn.
Abernathy-Thomas Eng. Co.
341 W. Mark St.

LOS ANGELES 15, Cal.
Calrepco
1417 Georgia St.

NEW YORK, N.Y.
Dana-Beach-Anderson Co.
101 Park Ave.

PITTSBURGH 16, Pa.
Biltmore Products Co., Inc.
1501 Potomac Ave.

ROCHESTER 10, N.Y.
Carl A. Pearson Co.
232 Winton Road, N.

ST. LOUIS, Mo.
Fred Zopff Co.
P.O. Box 105

SALT LAKE CITY, Utah
Process Equipment Co.
138 South Second, East

SAN FRANCISCO 5, Cal.
Oliver B. Lyman Co.
55 New Montgomery St.

SCHENECTADY, N.Y.
Carl A. Pearson Co.
939 Cutler St.

SEATTLE, Wash.
Automation Products
2800 15th Ave., West

SPOKANE, Wash.
Automation Products
120 North Division St.

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Minich DuVon Corp.
P.O. Box 17161

TULSA, Okla.
The Ben McKalip Co.
P.O. Box 15862

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Filer-Smith Mach. Co., Ltd.
503 Federation Bldg.

TORONTO 12, Ont.
Tubefit, Ltd.
2043E Avenue Road

SARNIA, Ont.
Tubefit, Ltd.
275 Tecumseh St.

Pace Controls Corp., 661 Highland Ave., Needham Heights, Mass., HIllcrest 4-8844

Representative
J. E. Cuesta & Co.
20 So. Valley Road, Paoli, Penna.
Niagara 4-6020

Pace Electrical Instruments Co., Inc., 70-31 84th St., Glendale 27, L. I., N. Y.

Pace Engineering Co., 13035 Saticoy St., No. Hollywood, Calif. PO 5-0453

Pacific Electro Magnetics Co., Inc., 942 Commercial St., Palo Alto, Calif., DAvenport 1-1177

Pacific Electronic Controls Corporation, 1001 S. Mountain Ave., Monrovia, Calif. ELliott 9-3255

Pacific Instrument Co., 4296 East 12th St., Oakland 1, Calif. KE-2-2035

Pacific Resistor Co., 2320 Pontius Ave., L. A. 64, Calif. GR 8-0711

Pacific Scientific Co., Box 22019, Los Angeles 22, Calif., SPruce 3-2020

Pacific Scientific Instrument Laboratory, 5707 Centinela Blvd., Culver City, Calif., EX 8-8752

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Pacific Universal Products Corp., 168 Vista Ave., Pasadena, Calif. MUrray 1-7646

Packard Bell Computer Corp., 1905 Armacost Ave., Los Angeles 25, Calif. GRanite 8-4247

Packard Bell Electronics Corp., Technical Products Div., 12333 W. Olympic Blvd., Los Angeles 64, Calif.

Packard Instrument Company, Inc., Box 428, La Grange, Ill. HUnter 5-6330

Pacsol Div. of Illinois Tool Works, 500 E. Franklin Ave., El Segundo, Calif. ORegon 8-4931

Paktron, Div. of Illinois Tool Works, 1321 Leslie Ave., Alexandria, VA., KIng 8-4400

Palmer Thermemeters Inc., 2501 Norwood Ave., Cincinnati 12, Ohie. MElrose 1-1500
(See advertisement on page 73)

Palnut Co., Div. of United-Carr Fastener Corp., 10a Glen Rd., Mountainside, N. J., ADams 3-3300

Palo Laboratory Supplies, Inc., 75 Ninth Ave., New York 11 N. Y. COrtlandt 7-0075

Palos Optical Co., P. O. Box #6, Palos Heights, Ill. GIbson 8-0455

Pancro Mirrors, Inc., 2958 Los Feliz Blvd., Los Angeles 39, Calif. NOrmandy 1-2141

Panduit Corp., 17301 Ridgeland Ave., Tinley Park, Ill. Hilltop 5-3134
(See advertisement on page 192)

Panellit Division, Information Systems, Inc. 7401 N. Hamlin Ave., Skokie, Ill. Orchard 5-2500

Panoramic Radio, see below

Panoramic Electronics, Inc., 520 South Fulton Ave., Mt. Vernon, N. Y. OWens 9-4600

Pantex Valve Actuators, Div. of Southwestern Mfg. Co., P. O. Box 22351, Houston 27, Tex. MOhawk 6-0386

Parabam, Division of Houston Fearless Corp., 12822 Yukon Ave., Hawtherne, Calif.
(See advertisement on pages 88, 110)

Paragon Electric Co., 1600—12th St., Two Rivers, Wis. Telephone 303

Paramount Paper Tube Corp., 614 So. Lafayette St., Fort Wayne 2, Ind.

Paraplegics Manufacturing Company Inc., 304 N. York Rd. Bensenville, Ill.

Park Nameplate Co., Inc., 34-10 Linden Place, Flushing 54, N. Y. Flushing 9-7000

Parker Aircraft Co., 5827 W. Century Blvd., Los Angeles 45, Calif. ORchard 0-1221 SPring 6-1221

Parker Electronics Co., 375 Fairfield Ave., Stamford, Conn. DAvis 3-0954

Parker-Hannifin Corp., 17325 Euclid Ave., Cleveland 12, Ohio. KEnmore 1-3000

Parker-Hartford Corp., 650 Franklin Ave., Hartford 14, Conn., CHapel 6-1651

Parker-Kalon, a div of Genral American Transportation Corp., 1 Peekay Drive, Clifton, N. J. GRegory 1-1000

Parker Seal Co., 10567 Jefferson Blvd., Culver City Calif., VE 9-1161

Parko Electronics Co., 2639 So. LaCienega Blvd., Los Angeles 34, Calif., UPton 0-8618
(See advertisement on page 180)

Parks-Cramer Company, Process Heating Dep't, Newport St., Fitchborg, Mass. DIamond 3-3796

Par-Metal Products Corp., 32-62 49th St., Long Island City 3, N. Y. Astoria 8-8905

Parr Mfg. Corp., 44 Austin St., Newark 2, N. J. BI 3-2340

Parr Instrument Co., 211 53rd St., Moline, Ill. Telephone 2-7716

Parsons Co., Ralph M., Electronics Div., 151 S. De Lacey Ave., Pasadena, Calif. MUrray 1-0461

Partlow Corp., 252 Campion Road, New Hartford, N.Y. Utica SW-7-2222

Pass & Seymour, Inc., 50 Boyd Ave., Syracuse 9., N. Y. HOward 8-6211

Paterson Co. Inc., Stuart D., 65 Culver Parkway, Rochester 9, N. Y. BU-8-2947

Patwin Div., Patent Button Co., 41 Brown St., Waterbury 20, Conn., PLaza 6-3631

Paul, F. H. & Stien Bros., Inc., 235 Fifth Ave., New York 16, N. Y. MUrray Hill 4-6370

Pearce-Simpson, Inc., 3950 N. W. 28th St., Miami 42, Fla. NE-3-6976

Pearson Electronics, Inc., 707 Urban Lane, Palo Alto, Calif. DAvenport 6-7285

Pee-Wee Molding Corp., 1720 Atlantic Ave., Brooklyn 13, N. Y. PR 4-3441

Peer Incorporated, 1200 Milton St., Benton Harbor, Mich. WA-5-8828

Pegasus Laboratories, Inc., 3500 West Eleven Mile Road, Berkley, Mich. LIncoln 7-8700-1

Penberthy Mfg. Co., Div., Buffalo-Eclipse Corp., 2660 East Grand Blvd. Detroit 11, Michigan

Pendar, Inc., 14744 Arminta St., Van Nuys, Calif. TRiangle 3-3136

Penn Meter Co., 4110 Haverford Ave., Philadelphia 4, Pa.

Pittsburgh and Buffalo Representatives
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810 Noblestown Rd., Pittsburgh 5. WAlnut 2-4212
1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229

Penn Optical & Instrument Co., 2930 Bristol St., Costa Mesa, Calif. KImberly 5-1165
(See advertisement on page 146)

Pennsylvania Flurocarbon Co., Inc., 1115 No. 38th St., Philadelphia 4, Penna. EVergreen 6-0603

Pennsylvania Pump & Compressor Co., Easton, Pa.

Pennwood Numechron Co., 7249 Frankstown Ave., Pittsburgh 8, Pa.
(See advertisement on page 88)

Penta Laboratories Inc., 312 N. Napal St., Santa Barbara, Calif.,

Perfecting Service Company, 332 Atando Ave., Charlotte 6, N. C. FRanklin 6-4811

Performance Measurements Co., 15301 W. McNichols Rd., Detroit 3, Mich. TOwnsend 9-6400

The Perkin-Elmer Corp., Main Ave., Norwalk, Conn., VIctor 7-0414

Perkin Engrg. Corp., 345 Kansas St., El Segundo, Calif. SP-22171

Perkins & Son, B. F., Inc., Tester Div., Box 388, Holyoke, Mass. JE-4-5646

Perkins Machine & Gear Co., Circuit Ave., W. Springfield, Mass., REpublic 7-4751

Permacel, U. S. Highway #1, New Brunswick, N. J., CHarter 7-7900

Permag Corp., 88-06 Van Wyck Expressway, Jamaica 18, N. Y.
(See advertisement on page 169)

Permanent Magnet Co., 4437 Bragdon St., Indianapolis 26, Ind. LIberty 7-1336

Permoflux Products Co., 4101 San Fernando Rd., Glendale, Calif., CHapman 5-5111

Permutit Co., a division of Pfaudler Permutit Inc., 50 West 44th St., New York 36, N. Y. OXford 7-6600

Peschel Electronics, Towners, Patterson RD. 1, N. Y. TRinity 8-3251

Pesco Products Division, Borg-Warner Corp., 24700 N. Miles Rd., Bedford, Ohio AXminster 2-6100

Peterson Co., Inc., Stuart D., 65 Culver Parkway, Rochester 9, N. Y. BU 8-2947

Petrometer Corp., 43-22 10th St., Long Island City 1, N. Y. STillwell 4-8042

Pfaltz & Bauer, Inc., 350 5th Ave., New York 1, N. Y. CHickering 4-6485

Phalo Plastics Corp., 530 Boston Turnpike, Shrewsbury, Mass. VIking 4-4021

Phaostron Instrument & Electronics Co., 151 Pasadena, Calif. CL-5-1471

Phelps Dodge Copper Products Corp., 300 Park Ave., New York 22, N. Y. PLaza 1-3200

Philadelphia Gear Corp., Schuylkill Expressway, King of Prussia, Pa., Broadway 9-7100

Philadelphia Insulated Wire Co., New Albany Road, Moorestown, N. J. BElmont 5-6700

Philadelphia Scientific Glass Co., 468 W. Paletown Rd., Quakertown, Penna. KE-6-7801
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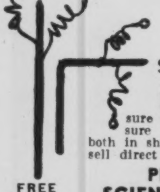

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Philbrick Researches, Inc., George A., 127 Clarendon St., Boston 16, Mass. COmmonwealth 6-5375

New England Representative
Instrument Dynamics, Inc.
11 Albion St., Wakefield, Mass.
Telephone 245-5100

Philco Corp., Govt. & Indus. Div., 4700 Wissahickon Ave., Philadelphia 44, Pa. VIctor 3-4000

Philco, Lansdale Div., Church Rd., Lansdale, Pa. ULysses 5-4681

Philips Electronic Instrs., 750 S. Fulton Ave., Mount Vernon, N. Y. Mount Vernon 4-4500

Phillips & Co., H. A. 3255 W. Carroll Ave., Chicago 24, Ill. NEvada 8-1116

Phillips Control Corp., 59 W. Washington St., Joliet, Ill. SA-3-3431

Phillips-Drucker, Inc., P. O. Box 507, Astoria, Oregon. FAirfax 5-3241

Phipps & Bird, Inc., 303 S. 6th St., Richmond 5, Va. MI 3-9163

Phoenix Precision Instruments Co., 3803-05 N. 5th St., Philadelphia 40, Pa. BA 8-7417

Photo Research Corp. 837 N. Cahuenga Blvd., Hollywood, Calif.

Representative—Eastern USA
Hoffman Engineering Corp.
183R Sound Beach Ave., Old Greenwhich, Conn.
NEptune 7-1719

Photobell Co., Inc., 12 E. 22nd St., New York 10, N. Y. ORegon 4-2121

Photocon Research Products, 421 N. Altadena Dr., Pasadena, Calif. SYcamore 2-4131

Photomation, Inc., 96 S. Washington Ave., Bergenfield, N. J. DUmont 4-3411

Photomechanisms, Inc., 15 Stepar Place, Huntington Station, N. Y., HAmilton 3-4411

Photoplating Co., 215 N. E. 5th St., Minneapolis 13, Minn. FE 5-1229

Photron Instrument Company, 6516 Detroit Ave., Cleveland 2, Ohio ATlantic 1-7020

Physical Sciences Corporation, 389 North Fair Oaks Ave., Pasadena, Calif. MUrray 1-5644

Physics Research Laboratories, Inc., P. O. Box 555, Hempstead, N. Y. IVanhoe 3-8299
(See advertisement on page 103)

Pic Design Corp., 477 Atlantic Ave., East Rockway, N. Y., LYnbrook 3-6470

Pickard & Burns, Inc., Electronic Products Dept., 240 Highland Ave., Needham 94, Mass. HIllcrest 4-3345

Picker X-Ray Corp., Nuclear Instrument Div., White Plains, N. Y. WHite Plains 8-0080 1275 Mamaroneck Ave.

Piezo Crystal Co., 265 E. Pomfret St., Carlisle, Pa. Telephone 1495

Pimex, Inc., 18 E. 60th St., New York 22, N. Y.

Pitometer Log Corp., 237 Lafayette St., N. Y. 12, N. Y. CAnal 6-7250

Pittsburgh Instrument & Machine Co., 1026 Reedsdale St. Pittsburgh 33, Pa. FAirfax 1-8012

Pittsburgh Lectrodryer, Div. McGraw-Edison Co., P. O. Box 1766, Pittsburgh 30, Pa. GRant 1-8782

Pivot Co., 2 Aster Terrace, Mendham, N. J. LI 3-4984

Planet Instrument, Inc., 616 S. Lafayette St., Fort Wayne, Ind. Telephone E-1495

Plastic Capacitors, Inc., 2620 North Clybourn Ave., Chicago 14, Ill. DIversey 8-3735

Plastoid Corp., 42-61 24th St. Long Island City 1, N. Y. STillwell 6-6200

Plug-In Instruments, Inc., 1416 Lebanon Rd., Nashville 10, Tenn., AL 4-8829

Plumb Co. Inc., D. S., 73-77 Norfolk St., Newark, N. J. HUmboldt 2-1865

Plummer & Kershaw, 4th & Jefferson Sts., East Greenville, Pa. ORleans 9-7986

Pneu Hydro Valve Corp., 52 Horse Hill Rd., Cedar Knolls, N. J. JEfferson 8-7200

Pneumafil Corp., 2516 Wilkinson Blvd., Charlotte, N. C., EX 9-7441

Pneumatic Scale Corp., Ltd., 72 Newport Ave., Quincy 71, Mass.

Pneumaticount, Inc., 3400 N. E. 54th Ave., Portland 13, Oregon ATlantic 8-0288

Pneumercator Co., Inc., 305 E. 46th St., New York 17, N. Y. PL 5-6033

Polarad Electronics Corporation, 43-20 34th St., Long Island City 1, N. Y. EXeter 2-4500

Pollak Corp., Joseph, 85 Freeport St., Boston 22, Mass. AVenue 2-9550
(See advertisement on page 176)

Polymer Corp., 2120 Fairmont Ave., Reading, Pa. FR 6-5791

Polyphase Instrument Co., E. 4th St., Bridgeport, Pa. BRoadway 9-4660

Poly-Scientific Corp., Route 460, North, Blacksburg, Va. PRescott 2-8212

Pomona Electronics Co., Inc., 1500 E. 9th St., Pomona, Calif., NAtional 9-9549 or 2-4950

James, Pond, & Clark, Inc., 2181 E. Foothill Blvd., Pasadena, Calif., MU 1-4966

Poole Instruments, Inc., 150 Express St., Box 1532, Dallas 21, Texas. RIverside 7-2353

Porta-Trace, Inc., 50 Wall St., Binghamton, N. Y. RA 3-7510

Porter, Inc., Geo. K., Bethlehem Pike, Hatfield, Pa. ULysses 5-9519

Post Electronic, Products Reid Brothers Co., Inc., 12 Lothrop Street, Beverly, Mass. WA 2-0811

Potter Aeronautical Corp., Route #22, P. O. Box 1123, Union, N. J. MUrdock 6-3010

Potter & Brumfield, Division of American Machine & Foundry Co., Princeton, Ind., FUlton 5-5251

Potter Instrument Co., Inc., Sunnyside Blvd., Plainview, N. Y. OVerbrook 1-3200

Power Controls Div., Ovitron Corp., 105 River Rd., Cos Cob, Conn., TOwnsend 9-8880

Power Designs, Inc., 1700 Shames Dr., Westbury, N. Y., Edgewood 3-6200
(See advertisement on page 117)

New England Representative
Instrument Dynamies, Inc.
11 Albion St., Wakefield, Mass.
Telephone 245-5100

Power Devices, 10709 Venice Blvd., Los Angeles 34, Calif., VErmont 7-2713

Power Instruments, Inc., 7352 N. Lawndale Ave., Skokie, Ill.

Power Sources, Inc., Northwest Industrial Park, Burlington, Mass. BRowning 2-2000

Powertron Ultrasonics Corp., Expressway Ind., Park Plainview, L. I., N. Y. Pioneer 1-3221
(See advertisement on pages 28, 183)

Power-Tronic Systems, Inc., 10-12 Pine Court, New Rochelle, N. Y. NE-2-2200

Powers Regulator Co., 3400 Oakton St., Skokie 10. Ill. ORchard 3-6700

Pratt & Whitney Co., Charter Oak Blvd., West Hartford 1, Conn. ADams 3-7561

Precise Measurements Co., Millbrook St., R. D. 1, Flemington, N. J. FLemington 900

Precision Apparatus Co., Inc., 70-31 84th St., Glendale 27, Long Island, N. Y. DA-6-3982

Precision Circuits, Inc., 85 Weyman Ave., New Rochelle, N. Y., BEverly 5-4300

Precision Connectors Inc., 134-20 Jamaica Ave., Jamaica 18, L. I., N. Y. PI-7-4420

Precision Glass Products Co., 6137 Beechwood St., Philadelphia 38, Pa. GErmantown 8-8005

Precision, Inc., 4748 France Ave., No., Minneapolis, Minn. JU 8-9441

Precision Instrument Co., 1011 Commercial St., San Carlos, Calif. LYtell 1-4441

Precision Line Inc., 63 Main St., Maynard, Mass. TWin Oaks 7-2451

Precision Mechanisms Corp., 44 Brooklyn Ave., Westbury L. I., N. Y., EDgewood 3-5955

Precision Metal Products Co., 41 Elm St., Stoneham 80, Mass. 438-3650

Precision Paper Tube Co., 2035 W. Charleston St., Chicago 47, Ill. AR 6-5200

Precision Products, Inc., 530 S. Quaker, Tulsa 20, Okla. DIamond 3-3116

Precision Products Co., Inc. of Waltham, 26 Bedford St., Waltham 54, Mass. TW 4-1400

Precision Recording Chart Co., 2430 E. Linden Ave., Linden, New Jersey HUnter 6-2102

Precision Resistor Co., 109 U. S. Hwy. #22, Hillside, N. J. BIgelow 3-3809

Precision Scientific Company, 3737 W. Cortland St., Chicago 47, Ill. CApitol 7-2660

Precision Specialties, Inc., P. O. Box 118, Delsea Drive, Hurffville, N. J.

Precision Thermometer & Instr. Co., 1434 Brandywine St., Philadelphia 30, Pa.

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M. S. Jacobs & Associates, Inc.,
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1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229

Precision Tube Co., Inc., Church Road & Wissahickon Ave., North Wales, Pa. OXbow 9-4806

Preis Engraving Machine Co., H. P., 651 U. S. Highway 22, Hillside 5, N. J. MU-6-7736

Premier Metal Products Co., 337 Manida St., Bronx 59, N. Y. WY 1-6600
(See advertisement on page 172)

New England Representative
Henry Lavin Associates, Inc.
P. O. Box 921, Meriden, Conn.
BEverly 7-5527

Premier Microwave Corp., 33 New Broad St., Port Chester, New York WEstmore 9-8900

Premier Research Laboratories, Inc., 81 Seventh Avenue, New York 11, N. Y. ALgonquin 5-0700

Presin Co., 2014 Broadway, Santa Monica, Calif. EXbrook 3-9738

Pressure Products Industries Inc., 412 S. Warminster Rd., Hatboro, Pa. OS-5-1600

Prestoseal Mfg. Corp., 37-27 33rd St., Long Island City 1, N. Y., STilwell 4-6832

Price Electric Corporation, E. 2nd & Church Streets, Frederick, Md. MO-3-5141

Princeton Division of Curtiss-Wright Corp., P. O. Box 110, Princeton, N. J. SWineburne 9-0500

Pritchard, J. F. & Co. of Calif., 4625 Roanoke Pkwy., Kansas City 12, Mo. JE 1-9500

Probescope Co., Inc., 8 Sagamore Hill Drive, Port Washington, N. Y. Port Washington 7-8150

Process & Instruments, 15 Stone Ave., Brooklyn 33, N. Y. GLenmore 2-8380

Projects Unlimited, Inc., 1926 E. Siebenthaler Ave., Dayton 14, Ohio, Crestview 8-4244

Propulsion Development Labs., 1120 E. El Segundo Blvd., El Segundo, Calif.

Protection Controls, Inc., 7317 N. Lawndale Ave., Skokie, Ill. ROdney 3-3110

Caplugs Div., Protective Closures Co., Inc., 2207 Elmwood Ave., Buffalo 23, N. Y., TR 6-9855

Prototype Transformer Corp., 1 Henry St., Bloomfield, N. J., PIlgrim 8-8080

Pulse Engineering, Inc., 560 Robert Ave., Santa Clara, Calif. CHerry 8-6040

Putnam Co., J. L., Smith St., Biddleford, Maine, AT 3-3400

Pyle-National Company, 1334 N. Kostner Avenue, Chicago 51, Ill. DIckens 2-6300

Pyramid Electric Co., Orange St., Darlington, S. C., Express 3-3821

Pyramid Instrument Corporation, 630 Merrick Road, Lynbrook L. I., N. Y. LYnbrook 3-5600

Pyramid Plastics, Inc., 562 W. Polk St., Chicago 7, Ill. WAbash 2-5560
(See advertisement on page 204)

Pyro Service Co., 17121 Greeley, Detroit 3, Mich. TWinbrook 1-4028

Pyro-Electric, Inc., P. O. Box 152, 552 Lincoln Ave., Winnetka, Ill. HIllcrest 6-6200

Pyrofilm Resistor Company, Inc., U. S. Highway #46, Parsippany, New Jersey Deerfield 4-8282

Pyrometer Co. of America, Inc., 600 E. Lincoln Hwy., Penndel, Pa. HObart 4-1200

Pyrometer Instrument Co., Inc., 92 Portland Ave. Bergenfield 12, N. J. DUmont 4-5140
(See advertisement on page 54)

Q

Q.V.S. Inc., 20 N. 15th St., E. Orange, N. J. ORange 3-3996

Quaker City Gear Works, Inc., Bethayres, Pa., WIlson 7-0800

Quan-Tech Laboratories, Inc., 60 Parsippany Blvd., Box 187, Boonton, N. J. DEerfield 4-8500

Quindar Electronics, Inc., 5 Lawrence St., Bloomfield, N. J., PIlgrim 3-0700

R

R-B-M Controls Div., Essex Wire Corp., 131 Godfrey St., Logansport, Ind. Telephone 5121

RCA, Defense Electronic Products Dept., Front & Cooper Sts., Camden, N. J., WO.-3-8000 XPC-3482

RCA Industrial Computer Systems Dept., 21 Strathmore Rd., Natick, Mass., OLympic 3-5660

RCA, Industrial Electronic Prods. Div., Front & Cooper Sts., Camden, N. J. WO-3-8000

RCA, Systems Support Dept., Front & Copper Sts., Camden 2, N. J., WOodlawn 3-8000

RdF Corp., 21 Elm Ave., Hudson, N. H., TUxedo 2-5195

REF Dynamics Corp., 393 Jericho Turnpike, Mineola, L. I., N. Y. PIoneer 2-8400

RF Products, A Division of Amphenol-Borg Electronics Corp., 33 E. Franklin, Danbury, Conn. PIoneer 3-9272

RHO Engineering Co., 2242 Sepulueda Blvd., Los Angeles 64, Calif., Br 2-1163 or GR 7-4741

RKL Controls, Inc., 1 Hainesport Industrial Park Hainsport, N. J. AMherst 7-2800

California Representative
Carkeek Engineering Co., Inc.
285 South Euclid Ave., Pasadena, Calif.
MUrray 1-0489

R.M.S. Associater, Inc., 805 Mamaroneck Ave., Mamaroneck, N. Y., OWens 8-5802

R-P & C Valve Div., American Chain & Cable Co., Inc., Reading, Pa.

R. S. Electronics Corporation, P. O. Box 11368, Station A Palo Alto, Calif. DAvenport 1-1130

Racine & Co., Inc., Jules, 20 West 47th St., New York 36, N. Y.
(See advertisement on page 151)

Racine Hydraulics & Machinery, Inc., Hydraulic Division, 2000 Albert St., Racine, Wis. MElrose 7-6731

Radar Design Corp., Box 38 Mattydale Sta., Syracuse 11, N. Y.

Radar Measurements Corp., 190 Duffy Ave., Hicksville, L. I., N. Y., OV 1-5600

Radar Relay, Inc., 2322 Michigan Ave., Santa Monica, Calif., EX 4-2230

Radex Corp., 2076 Elston Ave., Chicago 14, Ill. ARmitage 6-6900

Radiaphone Co., Inc., 600 E. Evergreen Ave., Monrovia, Cal. ELliott 8-2585

Radiation Inc., Melbourne, Fla. PArkway 3-1511

Radiation Applications, Inc., 36-40 37th St., Long Island City 1, N. Y., EMpire 1-2170

Radiation Counter Labs., Inc., 5121 W. Grove St., Skokie, Ill. ORchard 3-8700

Radiation Electronics Co., Div. of Comptometer Corp., 5600 Jarvis Ave., Chicago 48, Ill. SPring 5-2400

Radiation Instrument Development Lab., Inc., 61 East North Ave., Northlake, Ill., MUrray 1-2323

Radiation Research Corp., 1114 First Ave., New York 21, N. Y. TEmpleton 8-2513

Radio Condenser Co., Davis & Copewood Sts., Camden 3, N. J. EMerson 5-5500

Radio Frequency Labs., Inc., Powerville Rd., Boonton, N. J. DEerfield 4-3100

California Representative
Luscombe Engineering Co.
1020 S. Arroyo Parkway, Pasadena, Calif.
MUrray 2-3386

Radionics Incorporated 76 Cambridge St., Burlington, Mass. BRowning 2-1233

Rahm Instruments Div., American Machine, 65 Rushmore St., Westbury, N. Y. EDgewood 3-4840

Railway Communications, see Rycom Instruments

Ram Meter Inc., 1100 Hilton Rd., Ferndale 20, Mich. LIncoln 7-1000

Ramapo Instrument Company, Inc., 8 First Street, Bloomingdale, N. J. Terminal 8-4586

Ramm Rectifier Co., Inc., 527 Faile Street, Bronx 59, N. Y. DAyton 9-1636, DAyton 9-1637
(See advertisement on page 120)

Ramo-Wooldridge, Div. of Thompson Ramo Wooldridge Inc., 5500 W. El Segundo Blvd., Los Angeles 45, Calif. ORegon 8-0511

Ramsey Engineering Co., 1853 W. County Road C, St. Paul 13, Minn. MElrose 3-5150

Ranarex Dept., Permutit Division Pfaudler Permutit Inc., 50 W. 44th St., New York 36, N. Y.

Ransom Research, 374 W. 8th St., Box 269 San Pedro, Calif. TErminal 2-1128

Rantec Corp., 23999 Ventura Blvd., Calabasas, Calif. DIamond 7-5446

Rapid Electric Co., 2881 Middletown Rd., Bronx 61, N. Y. TA-8-2200
(See advertisement on page 116)

Rapid Specialties Co., 325 W. Huron St., Chicago 10, Ill. DElaware 7-1440

Rattray & Co., Inc., Geo., 101 New South Rd., Hicksville, N. Y.

Rawson Electrical Instr. Co., 112 A Potter St., Cambridge 42, Mass. Kirkland 7-4041
(See advertisement on page 123)

Ray Proof Corp., 843 Canal St., Stamford, Conn., DAvis 5-2201

Raydyne Corp., 2715 So. 4th St., Springfield, Ill. Lakeside 2-9122

Raymond Engineering Laboratory, Inc., Smith Street, Middletown, Conn. DIamond 7-5611

Raytheon Co., Aero/Weapons Division 520 Winter St., Waltham, Mass. TWinbrook 9-8000

Raytheon Co., Commercial Apparatus and Systems Division, 1415 Boston-Providence Turnpike, Norwood, Mass. NOrwood 7-6700

Raytheon Co., Communication & Data Processing Operation Div., 1415 Boston-Providence Turnpike, Norwood, Mass., NOrwood 7-6700

Raytheon Co., Equipment Division, P. O. Box 520 Waltham 54, Mass. DEcatur 2-7700

Raytheon Co., Industrial Components Division, 55 Chapel St., Newton 58, Mass. BIgelow 4-7500

Raytheon Co., Raytheon/Microwave & Power Tube Division, Spencer Laboratory, Burlington, Mass. BRowning 2-9600

Raytheon Co., Raytheon/Semiconductor Division, 150 California St., Newton 58, Mass. DEcatur 2-7177

Raytheon Co., Voltage Regulator & Power Supply Operation Div., Keeler Ave., South Norwalk, Conn., VOlunteer 6-5571

Raytheon Co., Government Marketing Div., Lexington 73, Mass., VOlunteer 2-6600

Rea Magnet Wire Company, Inc., 3610 East Pontiac St., Fort Wayne 4, Ind. ANthony 5201

Red Jacket Co., Inc. 500 Bell Ave., Carnegie Pa. WA 1-1202

Pittsburgh Representative
M. S. Jacobs & Associates, Inc.
810 Noblestown Road, Pittsburgh 5, Pa.
WAlnut 2-4212

Red Point Corp., 105 West Spazier Ave., Burbank, Calif. TH 2-4895

Redford Corp., Instrument Div., Lake Luzerne, N. Y. Telephone 3064

Redmond Co., Inc., 201 Monroe, Owosso, Mich., SA 5-5151

Reed Instrument Bearing Co., Div. SKF Ind. Inc., 4241 Redwood Ave., Los Angeles 66, Calif., UP O 5814

Reed Research Inc., 1048 Potomac St., Washington 11, D. C., FEderal 3-7000

Reeve Electronics, Inc., 609 W. Lake St., Chicago 6, Ill. RAndolph 6-9755

Reeves-Hoffman Div., Dynamics Corp. of Am., 145 Cherry St., Carlisle, Pa. CHapel 3-5929

Reeves Instrument Corp., East Gate Blvd., Roosevelt Field, Garden City, N. Y. PIoneer 6-8100

Reeves Pulley Co., Div., of Reliance Electric & Engrg. Co., 1225 7th St., Columbus, Ind. DR 6-3311

Reeves Soundcraft Corp., 15 Great Pasture Rd., Danbury, Conn. PIoneer 3-7601

Reflectone Electronics, Inc. Post Road and Myano Lane, Stamford, Conn. DAvis 5-2251

Regent Controls, Inc., Harvard Ave., Stamford, Conn. FIreside 8-7734

Reisner Mfg. Co., W. H., Inc., 240 N. Prospect St., Hagerstown, Md. RE 3-2650

Relay Sales Inc., Dept. AC-25, P. O. Box 186, West Chicago, Ill. W. Chicago 1100

Relay Service Co., 1308-12 No. Pulaski Rd., Chicago 51, Ill. ALbany 2-2700

Relcoil Products Corp., Rt. 75 & Spring St., Windsor Locks, Conn., NAtional 3-2484

Relcon Inc., 446 Ariens Ave., Connersville, Ind., 143

Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio, REdwood 2-7000

Reliance Instrument Div., Electro-Mech Corp., 500 Livingston St., Norwood, N. J. PO 8-5770

Renbrandt, Inc., 6 Parmelee St., Boston 18, Mass. HI-5-8910

Renick Co., L. C., 30 S. Salsipuedes St., Santa Barbara, Calif. WO-2-0947
(See advertisement on page 181)

Reon Resistor Corp., 155 Saw Mill River Road, Yonkers, N. Y. YOnkers 5-9850

Republic Flow Meters Co., Subsidiary of Rockwell Mfg. Co., 2240 Diversey Pkwy., Chicago 47, Ill. BRunswick 8-6000

Republic Lens Co., Inc., 31 E. 169th St., New York 52, N. Y. CYpress 3-2790

Republic Mfg. Co. ,15655 Brookpark Rd., Cleveland 35, Ohio CLearwater 2-1800

Rescon Electronics Corp., 151 Bear Hill Rd., Waltham 54, Mass., TWinbrook 9-8600

Resdel Corporation, P. O. Box #217, Rio Grande, N. J. WIldwood 2-5643

Rese Engineering, Inc., A & Courtland Sts., Philadelphia 20, Pa. WAlnut 2-5841

Research Inc., P. O. Box 6164, Edina Station Minneapolis 24, Minn. WE 5-2156

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BIgelow 4-1132

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Tek-Sel, Inc.
54 Route 17, Paramus, N. J. HUbbard 9-7210
Hatboro, Pa: OSborne 2-1069
TWX: HKK 1033

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Edwin J. Sutter
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JE 2-4982

Georgia, Alabama
Joe St. Clair
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Tel: 231-1894

Florida
Gilvert X. Cheves
P. O. Box 611, Cocoa Beach, Fla.
NE 2-0697

Ohio, Eastern Ind., Southern Mich.
R. D. P. Associates
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CHapel 7-7225

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Parrish Electronics
2130 South Albion, Denver 22, Colo.
SKyline 6-9455

Parrish Electronics
1437 San Mateo, N.E., Albuquerque, N. M.
Tel: 268-6791

Parrish Electronics
12 East Stratford, Salt Lake City, Utah
HUnter 7-7847 TWX: SU 346

Washington, Oregon
Martin Poggi
P. O. Box 587, Bellevue, Wash.
GLencourt 4-5648 TWX: BLVU 954

California
Berggren and Company
213 S. Hawthorne Blvd., Hawthorne, Calif.
OSborne 6-5858

Eastern Canada
Beechey Enterprises
3212 Weston Rd., Weston, Ontario, Can.
CHerry 4-8051

Research Appliance Co., Box 307 Allison Park, Pa. STerling 2-2262
(See advertisement on page 157)

Research Controls, Inc., Box 5035, Tulsa, Okla. TEmple 8-9434

Research Council Inc., 151 Bear Hill Rd. Waltham 54, Mass. TW-9-8600

Research Industrial Laboratory of Electronics, Roslyn, Pa. TUrner 4-9098

Research Products Co., 1415—3rd St., So., St. Petersburg, Fla. Telephone 7-8462

Research Specialties Co., 200 S. Garrard Blvd., Richmond, Calif. BEacon 5-9110

Research Vacuum Supply Co., 6712 N. Clark St., Chicago 26, Ill., HO 5-7490

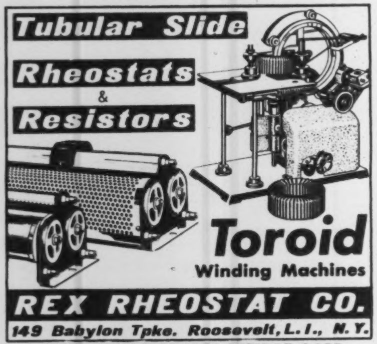
Resistance Products Company, 914 South 13th Street, Harrisburg, Pa. CEdar 6-5081

Resistors, Inc., 5226 W. 26th St., Chicago 50, Ill. BIshop 2-1540

Resistron Company, 2487 E. Washington St., Pasadena, Calif. SYcamore 8-9612

Revere Corp. of America (Subsidiary of Neptune Meter Co.), North Colony Road, Wallingford, Conn. COlony 9-7701

Rex Rheostat Co., 149 Babylon Turnpike, Roosevelt, L. I., N. Y. FReeport 9-1080
(See advertisement below)



CIRCLE 377 ON READER-SERVICE CARD

Rheem Electronics, A Div. of Rheem Mfg. Co., 5200 W. 104th St., Los Angeles 45, Calif. SPring 6-1800

Rheem Semiconductor Corp., 350 Ellis Street, Mountain View, Calif. YOrkshire 8-9211

Rhodes, Inc., M. H., 30 Bartholomew Ave., Hartford 6, Conn. JAckson 2-4265

Richards Co., Arklay S., Inc., 52 Winchester St., Newton Highlands 61, Mass. LAsell 7-4385

Richardson Co., 2889 Lake St., Melrose Park, Ill.

Richardson Camera Co., Inc., 2526 N. Ontario St., Burbank, Calif. VIctoria 9-4637

Richardson Scale Co., Van Houten Ave., Clifton, N. J. GRegory 1-3400

Richco Plastic Co., 3722 W. North Ave., Chicago 47, Ill. BE-5-2646
(See advertisement on page 204)

Richfield Coined Products Co., 722 Broad St., Clifton, N. J. GRegory 3-4381

Richmont Inc., 922 S. Myrtle Ave., Monrovia, Calif., ELliot 9-2555

Richter Cine Equipment, Dept. I Essex, N. Y., ESsex 2553
(See advertisement on page 142)

Riehle Testing Machines Div., American Machine & Metals, Inc., East Moline, Ill. Telephone 3-4561

Riggs Nucleonics Corp., 135 W. Magnolia Blvd., Burbank, Calif. VIctoria 9-2481

Rinco, Inc., 7962 S. E. Powell, Portland 6, Oregon. PR 4-3259

Riverbank Laboratories, Dept. of Engrg., 1512 So. Batavia Ave., P. O. Box 65, Geneva, Ill. CEnter 2-2207

Rivett Lathe & Grinder, Inc., 18 Riverview Road, Brighton 35, Mass. STadium 2-4530

Rixon Electronics, Inc., 2121 Industrial Parkway Montgomery Industrial Park, Silver Spring, Md., LO 5-4578

Robbins Aviation Inc., 2350 E. 38th St., Los Angeles 58, Calif. LUdlow 9-5221

Robbins & Myers, Inc., 1345 Lagonda Ave., Springfield, Ohio, FAirfax 3-6461

Robertshaw-Fulton Controls Co., P. O. Box 400, Knoxville 1, Tenn., 524-1641

Robins Industries Corp., 36-27 Prince St., Flushing 54, N. Y. HI 5-7200

Robinson Orifice Fitting Co., 2830 Lugo St., Los Angeles 23, Calif. ANgelus 9-1161

Robinson Technical Products, Inc., Robinson Vibrashock Division Teterboro Air Terminal, Teterboro, N. J. ATlas 8-2500

Robotomics Enterprises, 2422 E. Indian School Rd., Phoenix 16, Ariz. AM 6-8682

Rochester Div., Consolidated Electrodynamics, 1775 Mt. Read Blvd., Rochester 3, N. Y. GLenwood 3-7972

Rochester Instrument Systems Inc., 277 N. Union St., Rochester 5, N. Y.
(See advertisement on page 42)

Rochester Manufacturing Co., see American-Standard, Rochester Plant

Rockbestos Wire & Cable Co., Division of Cerro Corp., Nicoll & Canner Sts., New Haven 4, Conn.

Rockland Insulated Wire & Cable Co., Inc., 36 Main St., Haverstraw, N. Y. HAverstraw 9-3103

Rockwell Engineering Co., 2141 E. 45th St., Indianapolis 5, Ind. CLifford 1-9453

Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa. CHurchill 1-8400

Rockwell Co., W. S., 2128 Eliot St., Fairfield, Conn.

Pittsburgh Representative
M. S. Jacobs & Associates, Inc.
810 Noblestown Road, Pittsburgh 5, Pa.
WAlnut 2-4212

Rockwood Sprinkler Company—A Division of The Gamewell Co., 38 Harlow Street, Worcester 5, Mass. PL-6-2426

Rocky Mountain Instrument Co., 1912 Pearl St., Boulder, Colo., Hillcrest 2-3898

Rodale Electronics Inc., 562 Grand Blvd., Westbury. L. I., N. Y., EDgewood 3-6810

Rodale Mfg. Co., Inc., 6th Minor St., Emmaus, Pa. WOodring 5-9071

Rogan Brothers, Inc., 8031 N. Monticello, Skokie, Ill. ORchard 5-1233
(See advertisement on page 165)

Roger Gilmont Instruments, Inc., One Great Neck Road, Great Neck, L. I., N. Y. Hunter 7-0191

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Telephone 245-5100

Rome Cable Division of Alcoa, 421 Ridge St., Rome, N. Y. FF-7-3000

Ronan Panel Co., 8156 Orion Ave., Van Nuys, Calif., TR-3-4311 ST-1-2771

Ronningen-Petter Company Vicksburg, Michigan

Ronson Hydraulic Units Corp., 1313 Lincoln Ave., Pasadena, Calif., MUrray 1-0221

Roots-Connersville Blower, Division of Dresser Industries, Inc., 900 West Mount Street, Connersville, Ind. Telephone 1500

Rosemount Engineering Co., 4900 West 78th Street, Minneapolis 24, Minn., WAlnut 7-7711

Ross Operating Valve Company, 120 East Golden Gate Ave., Detroit 3, Mich. FO-6-3340

Rotary Devices Corp., 40 Jay St., Englewood, N. J. LOwell 9-0433

Rotating Components Inc., 1560 Fifth Ave., Bayshore, L. I., N. Y.

Rotek Instrument Corp., 733 Concord Ave., Cambridge 38, Mass. KI-7-0175

Rotiform Co., 1509 Colorado Ave., Santa Monica, Calif., EXbrook 5-8209

Rototest Labs., Inc., 2803 Los Flores Blvd., Lynwood, Calif. NEvada 6-9238

Rotron Mfg. Co., Rotron Controls Div., 66 Bearsville Rd., Woodstock, N. Y.
(See advertisement on page 33)

Rowan Controller Co., Measuring Devices Division, 26 Bridge Ave. Red Bank, New Jersey SH 7-2992

Rowe Engravers, Inc., 68 Union Ave., Clifton, N. J., MUlberry 4-1426

Royal Electric Corp., 95 Grand Ave., Pawtucket, R. I., PAwtucket 2-8600

Royal Industries, Inc., VARD Div., 2981 E. Colorado Blvd., Pasadena, Calif., SYcamore 6-9281

Royal McBee Corp., 850 Third Ave., New York 22, N. Y. WEstmore 7-3000

Royco Instruments Inc., 440 Olive St., Palo Alto, Calif. DAvenport 6-1831

Royson Engineering Co., 100 N. Penn St., Hatboro, Pa. OS 5-2800
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Rueckert Mfg. Co., 83 King St., East Greenwich, R. I. TUrner 4-2200

Ruska Instrument Corp., 6121 Hillcroft, Houston 36, Texas GYpsy 4-2533

Rust Industrial Co., Inc., 130 Silver St., Manchester, N. H., NAtional 3-3596

Rustrak Instrument Co. Inc., 130 Silver St., Manchester N. H., NA-3-3596-7

Rutherford Electronics Co., 8944 Lindblade St., Culver City, Calif. UPton 0-7393

Ryan Recording Thermometer Co., 851 Poplar Pl., Seattle 44, Wash. EAst 2-8600

Rycom Instruments, Inc., 9351 E. 59th St., Raytown 33, Mo. FLeming 3-2100

S

S-P Mfg. Corp., 30201 Aurora Rd., Cleveland 39, Ohio, Churchill 8-6141

Sage Electronics Corp., Country Club Road, East Rochester, N. Y. LU 6-8010

Sage Instruments, Inc., 9 Bank St., White Plains, New York WHite Plains 9-4121

Sage Labs. ,Inc., 3 Huron Drive. East Natick Ind'l Park, Natick, Mass. OLympic 3-0844

Saginaw Steering Gear Div of G. M. C., 3900 Holland Ave., Saginaw, Mich., PL 4-9111

San Diego Scientific Corp., 3434 Midway Drive, San Diego 10, Calif.

San Fernando Electric Mfg. Co., 1509 First St., San Fernando, Calif. EMpire 1-8681

Sanborn Co., 175 Wyman St., Waltham 54, Mass. TWinbrook 4-6300
(See advertisement on pages 98, 99)

Sanders Associates, Inc., 95 Canal St., Nachua, N. H., TUxedo 3-3321

Sanders Laboratories, 83 Uhland St., E. Rutherford, N. J. WEbster 9-2600

Sandy Manufacturing Co., 26 Maple Ave., Sellersville, Pa. ALpine 7-2989

Sangamo Electric Co., 11th & North Grand Ave., Springfield, Ill. KIngswood 4-6411

Santa Fe Instruments, Inc., 2343 Jerome Ave., N. Y. 68, N. Y., LU 4-8900

Saran Lined Pipe Co., 2415 Burdette Ave., Ferndale, Mich.

Rep—Va., N. C., S. C., Ga., Fla., Ala., Miss., Tenn.
Southern Corporation
127 East Bay, Box 810, Charleston, S. C.
RAymond 2-8160

Saxonburg Ceramics, Inc., Box 157, Saxonburg, Penna. FL-2-1566
(See advertisement on page 194)

Scaico Controls, Inc., 210 Taylor St., Riverside, New Jersey HO-1-4717

Scala Radio Co., 2814 19th St., San Francisco 10, Calif. VAlencia 6-2898

Scale Specialties, Inc., P. O. Box 574, Denville, N. J., DE 4-4808

Scam Instrument Corp., 1811 W. Irving Park Road, Chicago 13, Ill. GR 7-7850

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1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229

Scanivalve Company, 631 30th St., San Diego 2, Calif. BElmont 4-2090

Scanivalve Sales Co., Box 9814, Arlington 9, Va. JAckson 5-4541

Scans Associates, Inc., 12940 Farmington Road, Livonia, Mich. GArfield 4-2700

Schade Valve Manufacturing Co., 2527 N. Bodine St., Philadelphia 33, Pa. GArfield 5-0300

Schaevitz Engineering, U.S. Route 130 & Schaevitz Blvd., Pennsauken, N. J. NOrmandy 2-8000

Rep—North N. J. N, Y. New England
Instrument Sales Corporation
Hartsdale, N. Y.
SCarsdale 5-0800

Schauer Manufacturing Corp., 4500 Alpine Ave., Cincinnati 42, Ohio. SYcamore 1-3030

Scherr-Tumico, 200 Lafayette St., New York 12, N. Y. CAnal 6-3512

Schlumberger Corp., Ridgefield Instrumentation Div., P. O. Box 337 Grove Street, Ridgefield, Conn. IDlewood 8-6571

Schneider Mfg. Company, 2 Linden St., Reading, Mass. RE 2-0440

Schonstedt Engineering Company, 9170 Brookville Road, Silver Spring, Md. JU-5-8595

Schrader's Son, A., Division of Scovill Manufacturing Co. Inc., 470 Vanderbilt Ave., Brooklyn, New York 38, N. Y. NE-8-4000

Schuco Scientific A Division of Schueler & Co., 75 Cliff St., New York 38, N. Y. BEeckman 3-4200

Schueler & Company, 75 Cliff St., New York 38, N. Y. BE 3-2813

Schutte and Koerting Co., State Road, Cornwells Heights, Bucks County, Pa. MErcury 9-0900

Schwarzer Co., 46 Salmi Rd., Farmingham, Mass., TR 2-1830
(See advertisement on page 94)

Sciaky Bros., Inc., 4915 W. 67th St., Chicago 38, Ill. POrtsmouth 7-5600

Scientific-Atlanta, Inc., 2162 Piedmont Road, N. E., Atlanta 9, Ga. TRinity 5-7291

Scientific Glass Apparatus Co., Inc., 100 Lakewood Terrace, Bloomfield, N. J. PIlgrim 3-2200

Scientific Industries, Inc., 15 Park Street, Springfield 3, Mass. REpublic 2-6233

Scientific Instrument Co., 617 Howard St., Detroit 26, Mich. WOodward 2-9060

Scientific Products Co., 4200 Deepwater Terminal Road, Richmond 24, Va. BElmont 3-8356

Scopes Company, Inc., P. O. Box 56, Monsey, N. Y. ELmwood 6-6339

Scott, Inc., H. H., Instrument Div., 111 Powder Mill Road, Maynard, Mass. TW 7-8801

Scott Aviation Corporation, 207 Erie Street, Lancaster, N. Y. REgent 5100, Ext. 223

Scott Testers, Inc., 166 Blackstone St., Providence 1, R. I., DExter 1-5650

Scrayco Mfg. Co., 201 Greene Ave., Middlesex, N. J. EL 6-2955

Sealectro Corp., 139 Hoyt St., Mamaroneck, N. Y. OWens 8-5600

Sealtron Corporation, Reading Rd. at Amity, Cincinnati 15, Ohio VAlley 1-7444

Seco Electronics Inc., 5015 Penn Ave., S., Minneapolis 19, Minn. WAlnut 6-4545

Secon Metals Corporation, 7 Intervale Street, White Plains, N. Y. WHite Plains 9-4757

Security Controls Inc., 503 Franklin St., Buffalo 2, N. Y. LI 8535

Security Devices Laboratory, Div. of Sargent-Greenleaf Inc., 24 Seneca Ave., Rochester 21, N. Y., HOpkins 7-3200

Security Valve Company, 909 El Centro, So. Pasadena, Calif. MUrray 2-3303
(See advertisement on page 78)

Seegers Instrument Co., Inc., 515 Main St., Barrington, Ill. DU 1-2314
(See advertisement on page 149)

Seely Instrument Co., Inc., 377 Fourth St., Niagara Falls, N. Y. BUtler 2-1276

Seiscor, division of Seismograph Service Corp., Box 1590, 6200 E. 41st St., Tulsa 1, Okla. RIverside 3-1381

Seismograph Service Corp., 6200 E. 41st St., Tulsa, Okla. RI-3-1381

Selas Corp. of America, Dresher, Pa. MItchell 6-6600

Sel-Rex Corp., 75 River Road, Nutley 10, N. J. NU 2-5200

Semi-Alloys Inc., 20 N. MacQueston Pkwy., Mount Vernon, N. Y. MO-4-2800

Semi-Elements, Inc., Saxonburg Blvd., Saxonburg, Pa. FLanders 2-1548

Semon Bache & Co. (see Bache)

Sensitive Research Instrument Corp., 310 Main St., New Rochelle, N. Y. BEverly 5-2300

Sentry Equipment Corp., 856 East Armour Road, Oconomowoc, Wisc. DOgan 7-2515

Sequoia Wire & Cable Co., 2201 Bay Road, Redwood City, Calif. EMerson 9-0331

Serdex, Inc., 12 Bowdoin Sq., Boston 14, Mass. CApitol 7-7160
(See advertisement on page 35)

Service Recorder Co., 1013½ Rockwell Ave., Cleveland 14, Ohio

Servo Corp. of America, 111 New South Rd. Hicksville, L. I., N. Y., WElls 8-9700

Servo-Dynamics Corp., Main St., Somersworth, N. H. SOmersworth 1126

Servomechanisms, Inc., 200 N. Aviation Blvd., El Segundo, Calif., OSborne 5-7111

Servomechanisms Inc., Mechatrol Div., 1200 Prospect Ave., Westbury, L. I., N. Y., EDgewood 3-6000

Servometer Corporation, 222 Main Avenue, Passaic, N. J. PRescott 3-0474
(See advertisement on page 155)

Servo Systems Co., 14 Carmer Ave., Belleville 9, N. J. PLymouth 9-2875

Servo-Tek Products Co., 1086 Goffle Rd., Hawthorne, N. J. HAwthorne 7-3100

Servonic Instruments, Inc., 1644 Whittier Ave., Costa Mesa, Calif. MIdway 6-2427

Servonics, Inc., 822 N. Henry St., Alexandria, Va. TE 6-6800

Servotronics, Inc., 190 Gruner Rd., Buffalo 25, N. Y., TX 6-6105

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Shakeproof Div. Illinois Tool Works, St. Charles Road, Elgin, Ill. SH-1-7900

Shallcross Mfg. Co., Preston St., Selma, N. C. WOodlawn 5-2341

Shand and Jurs Company, 2600 Eighth St., Berkeley 10, Calif. TH-8-2345

Shapiro and Edwards, 1130 Mission St., South Pasadena, Calif. SY-9-1886 MU-2-3054

Shaw Instrument Corp., see Latronics

Sheffield Corp., subsidiary The Bendix Corp., Box 893, Dayton 1, Ohio. CLearwater 4-5377

Shepard Laboratories, Inc., 480 Morris Ave., Summit, N. J. CRestview 3-5255

Shielding, Inc., Box #33, Riverton, N. J.

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Shockley Transistor unit of Clevite Transistor, Stanford Ind. Park, Palo Alto, Calif. DAvenport 1-2121

Shore Instrument & Mfg. Co., Inc., 9035 Van Wyck Expressway Jamaica 35, N. Y. JAmaica 6-4090
(See advertisement on page 145)

Shure Brothers, Inc., 222 Hartrey Ave., Evanston, Ill. DAvis 8-9000

Sierra Electronic Corp., 3885 Bohannon Drive, Menlo Park, Calif. DAvenport 6-2060

Sierra Engineering Co., 123 E. Montecito Ave., Sierra Madre, Calif. RYan 1-9391

Sierra Research Corp., P. O. Box 22 or 240 Cayuga Rd., Buffalo 25, N. Y., NF 2-8823

Sigma Instruments, Inc., 170 Pearl St., So. Braintree 85, Mass. VIctor 3-5000

Sigmamotor Inc., 3 N. Main St., Middleport, N. Y. REpublic 5-3411

Sig-Trans, Inc. H,averhill Road, Amesbury, Mass. Amesbury 1476 & 1477

Silicon Transistor Corp., 150 Glen Cove Road, Carle Place, Long Island, N. Y. PIoneer 2-4100

Simmonds Precision Products, Inc., 105 White Plains Rd., Tarrytown, N. Y. ME 1-7500

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Simplex Valve & Meter Co., a division of Pfaudler-Permutit Inc., 7 East Orange St., Lancaster, Pa. EXpress 4-3792

Simplex Wire & Cable Co., 79 Sidney St., Cambridge 39, Mass. KIrkland 7-9000

Simpson Electric Co., 5200 W. Kinzie St., Chicago 44, Ill. EStebrook 9-1121

Simpson Optical Mfg. Co., 3200 W. Carroll Ave., Chicago 24, Ill. Van Buren 6-3030
(See advertisement on page 171)

SALES OFFICES

CALIFORNIA
Simpson Optical Manufacturing Company
1575 Gower St., Hollywood 28, Calif.
HOllywood 4-0232

MASSACHUSETTS
Simpson Optical Manufacturing Company
Concord Road, South Lincoln, Mass.
CLearwater 9-9532

Singleton Co., 11770 Berea Rd., Bldg., B., Cleveland 11, Ohio CLearwater 1-5580

Sirco Products, Inc., 2706 Third Ave., Seattle 1, Wash.

Sittler Corporation, 18 North Ada Street, Chicago, Ill. SEeley 3-4616

Size Control Co., Div. of American Gage & Machine Co., 2500 W. Washington Blvd., Chicago 12, Ill. MOnroe 6-6710

Skinner Electric Valve Div., 95 Edgewood Ave., New Britain, Conn. BAldwin 5-6421

Skydyne, Inc., River Road, Port Jervis, N. Y. 3-2241

Slaughter Co., Inc., 521 Young St., Piqua, Ohio. PR 3-5936

Slip Ring Company of America, 5456 W. Washington Blvd., Los Angeles 16, Calif. WEbster 1-8156

Color-Lite Div. of Sloan Co., 7704 San Fernando Rd., Sun Valley, Calif., TRiangle 7-1123

Slocomb Co., J. T., 68 Matson Hill Rd., So. Glastonbury, Conn. MEdford 3-9485

Small Motors Inc., 2076 Elston Ave., Chicago 14, Ill. ARmitage 6-6900

Smith, Inc., Arthur F., 311 Alexander St., Rochester 4, N. Y. BAker 5-4670

Smith Corp., A. O., 3533 N. 27th St., Milwaukee 1, Wis. UP 3-3000

Smith-Florence, Inc., Overlake Industrial Park P. O. Box 717 Redmond, Wash. ATwater 4-0170

Smith Thermotronics, Inc., Forrest & Hector Sts., Conshohocken, Pa. TAylor 8-4790
(See advertisement on pages 66, 206)

Smith Welding Equipment Division—Tescom Corp. 27th Ave. and 4th St. S. E., Minneapolis 14, Minn. FEderal 1-1311

Snap-Tite, Inc., 201 Titusville Rd., Union City, Pa.

Soiltest, Inc., 4711 W. North Ave., Chicago 39, Ill. SP-2-6400

Sola Electric Co., A Division of Basic Products Corporation 1717 Busse Road, Elk Grove Village, Ill. HE-6-2900

Solid State Electronics Co., 15321 Rayen St., Sepulveda, Calif. EMpire 4-2271

Solid State Products, Inc., 1 Pingree St., Salem, Mass. PIoneer 5-2900

Solitron Devices Inc., 500 Livingston St. Norwood, N. J. POplar 8-3770

Somerset Radiation Laboratory Inc., 192 Central Ave., Stirling, N. J., MI 7-1080

Sonex, Inc., Twenty East Herman St., Philadelphia 44, Pa. VIctor 3-6400

Sonobond Corp., 312 E. Rosedale Ave., West Chester, Pa., OW 6-4710

Sorensen & Co., A unit of Raytheon, Richards Ave., South Norwalk, Conn. TE-8-6571

Sorvall, Inc., Ivan, Pearl St., Norwalk, Conn. VI 7-2491 Southco Div., South Chester Corp., Lester, Pa.,

Southern Electronics Corp., 150 W. Cypress Ave. Burbank, Calif., VIctoria 9-3193

Space Electronics Corp., 930 Air Way, Glendale, 1, Calif., CHapman 5-7651

Space Products, 2235 E. Artesia Blvd., Long Beach 5, Calif. MEtcalf 0-6622

Spacetronics, Inc., 6000 Camp Bowie Blvd., Ft. Worth 16, Texas PE-8-1271

Sparling Equipment Div., Hersey-Sparling Meter Co., 225 North Temple City Blvd., El Monte, Calif. CUmberland 3-7101

Spaulding Fibre Co., Inc., 310 Wheeler St., Tonawanda, N. Y. JAckson 2000

Special Instruments Laboratory Inc., 312 W. Vine Ave., Knoxville 2, Tenn. Telephone 50216

Special Screw Products Co., 100 Northfield Rd., Bedford, Ohio BEdford 2-6565
(See advertisement on page 164)

Specialties, Inc., Charlottesville Albemarle Airport P. O. Box 888 Charlottesville, Virginia WAlnut 1-2345

Specialty Electronics Development Corp., 115 Eileen Way, Syosset, N. Y., Wells 5-3124

Specialty Screw Machine Products Inc., Dillerville Rd., Lancaster, Pa., EXpress 7-2867

Speck Electronics Inc., 13901 Saticoy St., Van Nuys, Calif., TR 3-1803

Spectra Electronics Corp., 250 E. Third St., Mount Vernon, N. Y. MOunt Vernon 8-1378

Spectra-Strip Wire & Cable Corp., P. O. Box 415, Garden Grove, Calif., JEfferson 7-4530

Spectracoat, Inc., 248 Harbor Blvd., Belmont, Calif. LY-1-0358

Spectrol Electronics Corp., 1704 So. Del Mar Ave., San Gabriel, Calif. ATlantic 7-9761; 1250 Shames Dr., Westbury L. I., N. Y.

Spectrum Instruments, Inc., Box 61, Steinway Station, Long Island City 3, N. Y. AStoria 8-8033

Speed Electronics, Inc., 177 Mill Lane, Mountainside, N. J., AD 2-5200

Spellman High Voltage Co., 1930 Adee St., Bronx, N. Y. Kingsbridge 7-0306
(See advertisement on page 116)

Spence Engineering Co., Inc., 29-41 Grant Street, Walden, N. Y. PRescott 2-4501
(See advertisement on page 79)

Spencer-Kennedy Laboratories, Inc., 1320 Soldiers Field Rd., Boston 35, Mass.

Sperry Electronic Tube, Div. of Sperry Rand Corp., Gainesville, Fla., FRanklin 2-0411

Sperry Gyroscope Company, Division of Sperry Rand Corp., Great Neck, N. Y. FIeldstone 7-3600

Sperry Microwave Electronics Co., Div. of Sperry Rand Corp., Clearwater, Fla. REdwood 6-4161

Sperry Phoenix Co., Division of Sperry Rand Corp., Deer Valley Road at Nineteenth Ave., Phoenix, Arizona WI-3-2311

Sperry Piedmont Co., Route 29 and Hydraulic Road, Charlottesville, Va. Telephone 3-6111

Sperry Products Co. Div. of Howe Sound Co., Shelter Rock Road, Danbury, Conn. PIoneer 8-3581

Sperry Semiconductor Div., of Sperry Rand Corp., Norwalk, Conn., VI-7-3851

Sperry Utah Co., 322 N. 21st West, Salt Lake City 16, Utah, DAvis 8-8066

Sphinx-Aemrican Co., 42 Cherry Lane, Floral Park, N. Y., HUnter 8-2600

Split Ballbearing Div., Miniature Precision Bearings, Inc., Highway 4, Lebanon, N. H. Phone 800

Sprague Electric Co., North Adams, Mass., MO 3-5311

Sprague Engineering Corp., 19300 So. Vermount Ave., Gardena, Calif.
(See advertisement on page 188)

Sprengnether Instrument Co., W. F., 4567 Swan Ave., St. Louis 10, Missouri JE-5-1682

Spring Specialty Co., 23 North 5th Ave., Maywood, Ill. FIlmore 4-4602

Square D. Company, 4041 North Richards Street, Milwaukee 12, Wisc. EDgewood 2-2000

Stackpole Carbon Co., Stackpole St., St. Marys, Pa. TErminal 41-521

Stacor Equipment Co., 285 Emmet St., Newark 5, N. J.

Stafford Mfg. Co., Inc., 155 58th St., Brooklyn 20, N. Y. HYacinth 2-6000

Stahlin Bros. Inc., 500 Maple St., Belding, Mich., 1500

Standard Cabinet Co., 53 Washington Ave., Carlstadt, 5, N. Y.
(See advertisement on page 27)

Standard Controls, Inc., 1130 Poplar Place, Seattle 44, Wash. EAst 4-8888 and 3-8545

Standard Electric Time Co., 89 Logan St., Springfield 2, Mass. REpublic 2-1142

Standard Electrical Products Co., 2240 East 3rd St., Dayton 3, Ohio. CLearwater 3-1191

Standard Electronics Co., 1611 W. 63rd St., Chicago 36, Ill. PR 8-4222

Standard Gage Co., Inc., 70 Parker Ave., Poughkeepsie, N. Y. GR 1-3100

Standard Instrument Corp., 657 Broadway, New York 12, N. Y. ORegon 3-3200

Standard Pressed Steel Co., Box 1282, Jenkintown, Pa. TUrner 4-7300

Standard Screw Co., 2520 Washington Blvd., Bellwood, Ill. ES 8-7400

Standard Unbreakable Watch Crystals, Inc., 123 East 144th St., Bronx, N. Y.

Standard Winding Co., Div. of Ovitron Corp., 44-62 Johnes St., Newburgh, N. Y., JOhn 1-1541

Stanford Glassblowing Labs., Inc., 971 Commercial St., Palo Alto, Calif. DA-1-2525

Stanpat Co., 150-42 12th Rd., Whitestone 57, N. Y. FLushing 9-1693

Staplex Co., Air Sampler Div., 777 Fifth Ave., Brooklyn 32, N. Y. SOuth 8-2335

Star Compass Co., 110 Antwerp St., Milton 86, Massachusetts

Starrett Co., L. S., 1-165 Crescent St., Athol, Mass. CHurchill 9-3551

States Company, 19 New Park Ave., Hartford 6, Conn.
(See advertisement on page 108)

Statham Instruments, Inc., 12401 W. Olympic Blvd., Los Angeles 64, Calif. BRadshaw 20371

Statolet Corp., 65-71 St., Guttenberg, N. J. UN-7-6694

Stavid Engrg., see Military Systems/Stavid Div.

Sta-Warm Electric Co., 957 North Chestnut St., Ravenna, Ohio AXminister 6-6462

Stearns Electric Corp., 120 N. Broadway, Milwaukee 2, Wis., BRoadway 2-1100

Stelma, Inc., 200 Henry St., Stamford, Conn. DAvis 5-4161

Sterling Glass Corp., 2315 W. 136th St., Blue Island, Ill.

Sterling Instrument Division of Designatronics, Inc. Sintsink Drive East, Port Washington, New York PO 7-8200

Sterling Transformer Corp., 297 No. 7th St., Brooklyn 11, N. Y. STagg 2-4200

Stevens Mfg. Co., Inc., P. O. Box 1007, Mansfield, Ohio TUxedo 4-1311

Stevens Mfg. Co., George, Inc., Chicago 46, Ill. JU 8-1300

Stevens Mfg. Co., George, Inc., 6001 N. Keystone Ave., Chicago 46, Ill. JU 8-1300

Stevens-Arnold Inc., 7 Elkins St., So. Boston 27, Mass. ANdrew 8-1170

Stevens Walden Inc., 454 Shrewsbury St., Worcester 4, Mass., Swift 9-4111

Stewart, M. C., Ashburnham, Mass. TAlbot 7-5840

Stewart Corp., F. W., 4311-13 No. Ravenswood Ave., Chicago 13, Ill. GRaceland 2-6600
(See advertisement on page 200)

Stewart-Warner Corp., 1826 Diversey Pkwy, Chicago 14, Ill. LAkeview 5-6000

Sticht Co., Herman, Inc., 27 Park Place, New York 7, N. Y. REctor 2-8163
(See advertisement on pages 59, 108, 110)

Stimpson Co., Edwin B., 70 Franklin Ave., Brooklyn 5, N. Y., ULster 5-3131

Stocker & Yale, Inc., 40 Green St., Marblehead, Mass. NEptune 1-0038

Stoddart Aircraft Radio Co., Inc., 6644 Santa Monica Blvd., Hollywood 38, Calif. HOllywood 4-9292

Stoelting Co., C. H., 424 N. Homan Ave., Chicago 24, Ill.

Stew-Mfg. Co., Inc., 443 State St., Binghamton, N. Y. RA-3-6411

Strahman Valves, Inc., Nicolet Ave., Florham Park, N. J. FR-7-4900

Strand Engineering Co., 7300 Huron River Drive P. O. Box 76, Ann Arbor, Mich. NOrmandy 2-3127

Stratos Div.,—Industrial Products Branch—Fairchild Engine & Airplane Corp., Route 109, West Babylon L. I., N. Y. MOhawk 5-0100

Pittsburgh and Buffalo Representatives
M. S. Jacobs & Associates, Inc.
810 Noblestown Rd., Pittsburgh 5. WAlnut 2-4212
1807 Elmwood Ave., Buffalo 7. TRiangle 3-3229
Rep—So. Ohio, So. Indiana, Kentucky
The Isaacs Co.
595 E. Galbraith Rd., Cincinnati 15. Tel: 761-8855
2676 Salem Ave., Dayton 6, Ohio. CR 5-6141

Streeter Amet Co., Slusser & Wicks, Grayslake, Ill. BAldwin 3-4801

Stretch Wire Corp., P. O. Box 893, New Rochelle, N. Y. NE 6-6900

Stromberg-Carlson, see General Dynamics

Stromberg Div.—General Time Corp., 135 So. Main St., Thomaston, Conn. ATlas 3-5881

Strong Electric Corp., 87 Park Avenue, Toledo 1, Ohio CHerry 8-3741

Struthers—Dunn, Inc., Lambs Road, Pitman, N. J. LUther 9-7500

Studebaker Hydraulic Products Co., 2511 St. Charles Road, Bellwood, Ill. LInden 7-7733

Sturrup, Inc., 50 Silver St., Middletown, Conn. DI 6-9681

Sturtevant Co., P. A., Addison, Ill. TErrace 4-2000
(See advertisement on page 148)

Subminiature Instruments Corp., 3236 Kansas Ave., Riverside, Calif., OV 4-7133

Summers Gyroscope Co., 2500 Broadway, Santa Monica, Calif. EXbrook 3-6711 UPton 0-7437

Sun Electric Corp., Instrumentronics Div., Harlem & Avondale Aves., Chicago 31, Ill. NEwcastle 1-6000

Sunnen Products Co., 7910 Manchester Ave., St. Louis 17, Mo. STerling 1-2100

Sunshine Scientific Instrument, 1810 Grant Ave., Philadelphia 15, Pa. ORchard 3-5600

Superex Elect. Corp., 4 Radford Pl., Yonkers, N. Y., YOnkers 5-6906

Superior Carbon Products, Inc., 9115 George Ave., Cleveland 5, Ohio, VUlcan 3-4880

Superior Electric Co., 383 Middle St., Bristol, Conn. LUdlow 2-9561

Superior Flux & Mfg. Co., 1536 St. Clair Ave., Cleveland 14, Ohio SU 1-9373

Superior Steatite & Ceramic Corp., 83-91 West Forest Ave., Englewood, N. J., LOwell 8-4555

Superior Tube Co., Box 191, Norristown, Pa. BRoadway 5-2070

Superite Instrument Corp., 140 Oak Drive & Cedar Pl. Floral Park 4-2520 Syosset, N. Y.

Surface Checking Gage Co., 5880 Hollywood Blvd., Hollywood 28, Calif. HOllywood 3-2518

Surprenant Mfg. Co., 172 Sterling St., Clinton, Mass. EMpire 5-6331

Suttle Equipment Corp., 135 S. LaSalle St., Chicago 3, Ill.

Swam Electric Co., Inc., 111 York Street, Hanover, Pa. MElrose 7-3821

Swartwout Division, Crane Co., Hooksett Industrial Park, Mancehster, N. H. NAtional 5-9685

Sweeney Mfg. Co., B. K., 6300 E. 44th Ave., Denver 16, Colo., FLorida 5-2355

Swiss American Jewel Bearings Co., 42 Cherry Lane, Floral Park, L. I., N. Y. HUnter 8-2600

Swiss Jewel Co., Lafayette Bldg., Philadelphia 6, Pa. WA 5-2867

Switchcraft, Inc., 5555 N. Elston Ave., Chicago 30, Ill. SPring 4-1515

Switzer Brothers, Inc., 4732 St. Clair Ave., Cleveland 3, Ohio EXpress 1-7070

Sylvania Chemical & Metallurgical Div., Sylvania Electric Products Inc., Towanda, Penna., ANdrew 5-2121

Sylvania Electronic Systems, A Div. of Sylvania Electric Products Inc., 40 Sylvan Rd. Waltham 54, Mass. TWinbrook 4-9770

Sylvania Electronic Tube, 1740 B'way, N. Y. 17, N. Y.

Sylvania Lighting Prods., Div. of Sylvania Electric Prods., Inc., 60 Boston St., Salem, Mass., PIoneer 5-4500

Sylvania Parts Div., Sylvania Electric Prods., Inc., 12 Second Ave., Warren, Penna., RAndolph 3-2000

Sylvania Semiconductor Division, 100 Sylvan Road, Woburn, Mass. WElls 3-3500

Sylvania Special Prods., Sylvania Electric Prods., Inc. 60 Boston St., Salem, Mass., PIoneer 5-4500

Synchro-Start Products, Inc., 8151 N. Ridgeway Ave., Skokie, Ill. OR 3-7730

Synthane Corp., 5 River Road, Oaks, Pa. GLendale 2-2211

Syntron Co., 702 Lexington Ave., Homer City, Pa. GRidley 9-8011

Syntronic Instruments, Inc., 100 Industrial Rd. Addisom, Ill. ,KIngswood 3-6444

Syracuse Electronics Corp., P. O. Box 566 Syracuse 1, N. Y.

System Analyzer Corp., 700 W. State, Nokomis, Ill. 52

Systematics, Inc., 10 East 40th St., New York 16, N. Y. LExington 2-8181

Systems Research Labs Inc., 500 Woods Dr., Dayton 32, Ohio, CHapel 4-4051

Systron Corp., 950 Galindo St., Concord, Calif. MU 2-3650

Systron-Donner Corp., 950 Galindo St., Concord, Calif. MU-2-6161

T

TA Mfg. Corp., 4607 Alger St., Los Angeles 39, Calif.

TRG Inc., 2 Aerial Way, Syosset L. I., N. Y., OVerbrook 1-6900

T. T. Electronics, Inc., P. O. Box 180, Culver City, Calif., UPton 0-3213

Taber Instrument Corp., 111 Goundry St., North Tonawanda, N. Y., LUdlow 2626

Taft-Peirce, Mfg. Co., 32 Mechanic Ave., Woonsocket R. I. POplar 2-1000

Tagliabue Div., Marshalltown Mfg. Inc., 800 East Nevada St., Marshalltown, Iowa

Talboys Instrument Corp., 9 Ackerman Ave., Emerson, New Jersey COlfax 2-5445

Taller and Cooper Inc. 75 Front St., Brooklyn 1, N. Y. ULster 8-0500

Talley Corp., 101 Highway & Conejo Rd., Newbury Park, Calif., HUdson 5-2121

Tally Register Corp., 1310 Mercer St., Seattle 9, Wash. MAin 4-0760

Tansitor Electronics, Inc., West Rd., Bennington, Vt., 473-74-75-76

Tapco Div., Thompson Ramo Wooldridge Inc., 23555 Euclid Ave., Cleveland 17, Ohio IV 1-7500

Taper Micrometer Corp., 100 Grove St., Worcester, Mass. PLeasant 6-6950

Tapeswitch Corp., of America, 229-24 Linden Blvd., Cambria Heights 11, N. Y., FIeldstone 1-4069

Taurus Corp., Academy Hill Lambertville N. J. EXport 7-1570

Taylor & Co., W. A., 7300 York Rd., Baltimore 4, Md. VA 3-1573

Taylor Dynamometer & Machine Co., 6411 River Parkway, Milwaukee 13, Wis. BL 8-9015

Taylor Electric Inc., Fisher Rd., Howell, Mich. 2985

Taylor Fibre Co., Box 471, Norristown, Pa. GLendale 2-2811

Taylor Instrument Companies, 95 Ames St., Rochester 1, N. Y. BEverly 5-5000

Tech Wire Assoc., Inc., Commercial Ave., Moonachie, N. J., WEbster 3-0900

Technibilt Corporation, 905 Air Way, Glendale 1, Calif. CHapman 5-7521

Technic, Inc., 88 Spectacle St., Cranston 10, R. I. STuart 1-6100

Technical Apparatus Builders, 109 E-Liberty St., New York 6, N. Y. REctor 2-6249
(See advertisement on page 120)

Technical Appliance Corp., 1 Taco St., Sherburne, N. Y. ORchard 4-2211

Technical Associates, 140 W. Providencia Ave., Burbank, Calif. VIctoria 9-5838

Technical Material Corp. 700 Fenimore Road, Mamaroneck, N. Y. OWens 8-4800

Technical Measurement Corp., 441 Washington Ave., North Haven, Conn. CEdar-9-2501

Technical Oil Tool Corp., 1057 N. La Brea Ave., Los Angeles 38, Calif., OLfield 4-1763

Technical Prod. Co., 6670 Lexington Ave., Los Angeles 38, Calif. HO 4-8121

Technical Service Corp., 917-19 S. Third St., Louisville 3, Ky. JUniper 7-8476

Technical Soldering Co., 13760 Saticoy, Van Nuys, Calif., State 2-1270

Technique Associates, A Div. of Duncan Electric Co., Inc., 1413 N. Cornell Ave., Indianapolis 2, Ind. ME-1-4904

Techni-Rite Electronics, Inc., 65 Centerville Rd., Warwick, R. I., REgent 7-2000

Technitrol Engineering Co., 1952 E. Allegheny Ave., Philadelphia 20, Pa. GA-6-9105

Technology Instrument Corp., 531 Main St., Acton, Mass. COlonial 3-7711

Technology Instrument Corporation of California, 850 Lawrence Dr., Newbury Park, Calif. HUdson 5-2165

Tech-Ohm Resistor Corp., 36-11 33rd Street, Long Island City 6, N. Y. STillwell 6-2274-5

Techron Corp., 20 Simmons St., Boston 20, Mass. HIghlands 5-2150

Tejax Engineering Corp., 180 Weeden St., P. O. Box 348, Pawtucket, R. I. PAwtucket 5-6788

Tektronix, Inc., P. O. Box 500, Beaverton, Ore. MI-4-0161

Telechrome Mfg. Corp., 28 Ranick Dr., Amityville, N. Y. LI-1-3600

Telecomputing Corp., Data Instruments Div., 12838 Saticoy St., North Hollywood, Calif. PO 5-8160

Telectro Industries, Corp., 35-16 37th St., Long Island City 1, N. Y. YEllowstone 2-8600

Tele-Dynamics Division, American Bosch Arma Corp., 5000 Parkside Ave., Philadelphia 31, Pa. TRinity 8-3000

Telemetering Corp., of America, 8345 Hayvenhurst Ave., Sepulveda, Calif., EMpire 2-3120 EXT 255, 256

Telerad Div. of The Lionel Corp., 1440 Broadway, New York 18, N. Y.

Teletype Corp., 5555 West Touhy Ave., Skokie, Ill. COrnelia 7-6700

Telex Lumen, a subsidiary of Telex, Inc., Box 905, Joliet, Ill. SAratoga 3-9324

Philadelphia Representative
Andeo Sales-Engineering Inc.
5823 Greene St., Philadelphia 44, Pa.
VIctor 4-9100

Tel-Instrument Electronics Corp., 728 Garden St., Carlstadt N. J. WE-3-1600

Teller Co., P. O. Box 989, Butler, Pa.

Telonic Engineering Corp., P. O. Box 277 773 Broadway, Laguna Beach, Calif. HYatt 47581, 60 North 1st Ave., Beech Grove, Indiana STate 7-7241

Tel-Tru Manufacturing Co., Div. of Germanow-Simon Machine Co., Inc., 408 St. Paul St., Rochester 5, N. Y. HA-6-6757

Temperature Engineering Corp., 2000 Tempcor Blvd. Riverton, N. J. TAlmadge 9-3880

Tempil Corp., 132 W. 22nd St., N. Y. 11, N. Y. ORegon 5-6610

Tempo Instrument Inc., Commercial St., P. O. Box 338, Hicksville, N. Y. OVerbrook 1-2280

Tenco Electronics Inc., 108 Cummington St., Boston 15, Mass., KE 6-4780

Tenney Engineering Inc., 1090 Springfield Rd., Union, N. J. MU 6-7870

Tensitron, Inc., 124-128 Harvard Depot Rd., Harvard, Mass. GLadstone 6-3511

Tensolite Insulated Wire Co., Inc., West Main St., Tarrytown N. Y. MEdford 1-2300

Tensor Electric Development Co., Inc., 1873 Eastern Parkway, Brooklyn 33, N. Y., HYacinth 5-9200
(See advertisement on page 185)

Tesla Research Foundation, Box 63 Sugar House, Salt Lake City 6, Utah, IN 6-7590

Testing Machines Inc., 72 Jericho Turnpike, Mineola, L. I., N. Y. PI 7-7466
(See advertisement on page 148)

Tetrad Co. Inc., 62 St. Mary St., Yonkers N. Y. YOnkers 3-1474

Texas Instruments Inc., Indus. Instn. Div., 3609 Buffalo Speedway, Houston 6, Texas JAckson 6-1411

Texas Instruments Inc., 13500 North Central Expressway, Dallas, Texas ADams 5-3111

Texas Nuclear Corp., Box 9267, Austin 17, Tex. GI 3-7288

Thayer Scale Corp., 1 Thayer Park, Pembroke, Mass. TAylor 6-2371

Them-O-Disc, Inc., P. O. Box 1538, Rt. 13, S., Mansfield, Ohio, LAfayette 2-4311

Thermal American Fused Quartz Co., Route 202 & Changebridge Rd. Montville, N. J. FOxcroft 6-2807

Thermal Controls, Inc., 41 River Road, North Arlington, N. J. WYman 8-8080

Thermax Wire Corp., 304 E. 45th St., New York 17, N. Y. MU-8-8648

Thermco Instrument Corp., U. S. 20, LaPorte, Ind. Telephone 5158
(See advertisement on page 35)

Thermo Electric Co., Inc., Saddle Brook, N. J.
Aircraft and industrial thermocouples, thermocouple wire and accessories; pyrometers, temperature controllers, indicators, recorders, monitoring systems, connector panels, resistance bulbs

•

Telephone Numbers Of

Thermo Electric

Sales Offices

•

ATTLEBORO, MASSACHUSETTS
Thermo Electric Co., Inc.
Castle 2-3368

BATON ROUGE, LOUISIANA
Thermo Electric Co., Inc.
Normandy 4-4748

***CHARLESTON, W. VA.**
Thermo Electric Co., Inc.
Enterprise 0875
(Charleston Subscribers only —no charge—ask operator)

CHATTANOOGA 5, TENNESSEE
Thermo Electric Co., Inc.
Amherst 6-3464

CHICAGO 46, ILLINOIS
Thermo Electric Co., Inc.
Newcastle 1-7332

CINCINNATI 37, OHIO
Thermo Electric Co., Inc.
Valley 1-8875

CLEVELAND 16, OHIO
Thermo Electric Co., Inc.
333-0247

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Thermo Electric Co., Inc.
Enterprise 8875
(Columbus Subscribers only —no charge—ask operator)

DENVER 9, COLORADO
James B. Drummond Company
Spruce 7-6748

DETROIT 6, MICHIGAN
H. H. Barnum Company
Kenwood 1-7504

HOUSTON 17, TEXAS
Thermo Electric Co., Inc.
Mission 4-5466

LOS ANGELES, CALIF.
Thermo Electric Co., Inc.
DIckens 5-1480
TRiangle 3-4244

***LOUISVILLE, KENTUCKY**
Thermo Electric Co., Inc.
WX 8875
(Call Long Distance—no charge)

MOBILE, ALABAMA
Frank A. Thomas Company
Greenwood 1-1593

NEW YORK, N. Y.
Thermo Electric Co., Inc.
Longacre 4-2560

PHILADELPHIA 19, PA.
Arobone and Cline, Inc.
Chestnut Hill 8-1243

PITTSBURGH 21, PA.
Thermo Electric Co., Inc.
Churchill 1-1200

SADDLE BROOK, N. J.
Thermo Electric Co., Inc.
Hubbard 9-5800

ST. LOUIS 22, MO.
E. B. Miller Co.
Yorktown 6-8250

SAN FRANCISCO 3, CALIF.
California Instrument Company
Underhill 3-0350

SEATTLE 2, WASH.
G. O. Carson Company
East 4-8347

SYRACUSE, NEW YORK
Thermo Electric Co., Inc.
Gibson 6-2849

WASHINGTON, D. C.
Arobone and Cline, Inc.
Juniper 8-2425

***If the telephone from which you are calling is listed in these cities, you may obtain a direct line to our Cincinnati office at no charge. In Charleston and Columbus ask for local operator; in Louisville ask for long distance operator.**

CANADA

BRAMPTON, ONTARIO
Thermo Electric (Canada) Ltd.
Glendale 1-0813

CALGARY, ALBERTA
Thermo Electric (Canada) Ltd.
Amherst 2-7077

MONTREAL 9, (ST. LAURENT) QUE.
Thermo Electric (Canada) Ltd.
747-7511

NORTH VANCOUVER, B. C.
Northern Columbia Process Epuipment Ltd.
Yukon 7-5711

Thermo Electric Co. Inc., 109 5th St., Saddle Brook, N. J. HUbbard 9-5800
(See advertisement on pages 53, 61, 67, 104, 182, 205, 236)

Thermo-Fax Div., Minnesota Mining & Mfg. Co., 900 Bush Ave., St. Paul 6, Minn. PRospect 6-8511

Thermo Products Co. Inc., 213 W. Pioneer Road Cedarburg, Wis.

Thermolyne Corporation P. O. Box 797, Dubuque, Iowa. Telephone 3-3501

Thermometer Corp. of America, 70 W. Columbia St., Springfield, Ohio FA-5-4747

Theta Instrument Corp., 520 Victor St., Saddle Brook, N. J. HUbbard 7-3508

Thomas & Betts Co., Inc., 336 Butler St., Elizabeth 1, N. J. Elizabeth 4-4321

Thomas Electronics Inc., 118 9th St., Passaic, N. J. GRegory 3-4040

Thomas Engineering Inc., D. W., 367 W. 7th St., San Pedro, Calif. TErminal 1-1206

Thomas & Skinner, Inc., 1120 East 23rd Street, Indianapolis 7, Ind. WAlnut 3-2501

Thompson Clock Co., H. C., 38 Federal St., Bristol, Conn. LUdlow 2-3186

Thompson-Ramo-Wooldridge Products Co., Div. of Thompson Ramo Wooldridge, Inc., 202 N. Canon Dr., Beverly Hills, Calif. BRadshaw 2-8892

Thor Ceramics, Inc., 225 Belleville Ave., Bloomfield, N. J. PI-3-7797

Thordarson-Meksner, 628 Bellmont, Mt. Carmel, Ill., 1200

Tiffen Optical Co., 71 Jane St., Roslyn Heights, L. I., N. Y. MAfair 1-2700
(See advertisement on page 170)

Tigerman Engineering Co., 4332 N. Western Ave., Chicago 18, Ill. IR 8-9841

Time and Frequency, 127 S. Batavia Ave., Batavia, Ill., TRemont 9-7800

Times Facsimile Corp., 540 W. 58th St., New York 19, N. Y. JUdson 2-3030

Times Wire & Cable Co., 358 Hall Ave., Wallingford, Conn. COlony 9-3381

Tinius Olsen Testing Machine Co., Easton Road, Willow Grove, Pa. OSborne 5-7100

Tinsley Laboratories, Inc., 2448 Sixth St. Berkeley 10, Calif. TH-3-6863

Tipptronic, Inc., 510 E. Washington Street, Chagrin Falls, Ohio CHestnut 7-7773

Titan Metal Mfg. Co., Div., of Cerro Corp., Bellefonte, Pa., ELgin 5-4712

Tobe Deutschmann Corp., 921 Providence Hwy., Norwood, Mass.

Toledo Scale, Div. of Toledo Scale Corp., Toledo 12, Ohio GReenwood 4-5411

Topaz Transformer Products Inc., 4995 Weeks Ave., San Diego 10, Calif., BRowning 6-3797

Topflight Corp., 160 E. 9th Ave., York, Pa., YOrk 8-1541

Toroid Unlimited Inc., 3830 Terrace St., Philadelphia 28, Pa. IV-2-7178

Torque Controls Inc., 829 E. Broadway, San Gabriel, Calif., CU 3-4181

Torrington Company, 59 Field Street, Torrington, Conn. HUnter 2-4441

Torsion Balance Co., 35 Monhegan St., Clifton, N. J. GRegory 3-6900

Torwico Electronics, Inc., Route 70 Lakewood, N. J. EL-4-5650

Tracerlab Inc., 1601 Trapelo Road, Waltham 54, Mass. TW-4-6600

Tracktest Equipment Co., Box 499, Franklin, Mich., MAyfair 6-2884

Trad Electronics Corporation, 1001 First Avenue, Asbury Park, N. J.

Traid Corp., 17136 Ventura Blvd., Encino, Calif. TRiangle 3-3373

Trak Electronics Co., Division of CGS Laboratories, Inc., 59 Danbury Road, Wilton, Conn. PO-2-5521

Trak Microwave Corp., 5006 N. Coolidge Ave., Tampa 3, Fla., REdwood 6-6422

Transco Products Inc., 12210 Nebraska Ave., Los Angeles 25, Calif., GR 8-4241

Transformers, Inc., 200 Stage Road, Vestal, N. Y. PIoneer 8-3311

Transistor Applications, Inc., 103 Broad St., Boston 10, Mass. HA-6-1794 HA-6-1795

Transistor Electronics Corp., 3357 Republic Ave., Minneapolis 26, Minn. WE-9-6754

Transistor Specialties, Inc., Terminal Drive, Plainview, N. Y., WEIls 5-8700

Transitron Electronic Corp., 168 Albion St., Wakefield, Mass. CRystal 9-4500

Trans-Sil Corporation, 21 New St., Englewood, N. J. LOwell 7-1720

Trans-Sonics, Inc., P. O. Box 328, Lexington 73, Mass. BRowning 2-1000

Traub U.S.A., Inc., 38-31 Crescent St., Long Island City 1, N. Y. EXeter 2-4090

Trent, Inc., 201-299 Leverington Avenue, Philadelphia 27, Pa. IVyridge 2-5000

Trenton Transformer Corp., P. O. Box 568, Trenton 9, N. J. OWen 5-3451

Trerice Co., H. O., 14020 W. Lafayette Blvd., Detroit 16, Mich. WO-3-9660

Tri-Dex Co., P. O. Box 1207, Lindsay, Calif. LIndsay 2-4051

Trimount Instrument Div., General Controls Co., 8080 McCormick Blvd., Skokie, Ill. IR-8-2323

Triner Scale and Manufacturing Co., 2714 W. 21st St., Chicago 8, Ill. BIshop 7-7538

Trinity Equipment Corp., West Road, Cortland, N. Y. SKyline 6-7535
(See advertisement on pages 25, 74)

Trio Laboratories, Inc., Dupont Drive Plainview, L. I. New York. OVerbrook 1-0400

New England Representative
Instrument Dynamics, Inc.
11 Albion St., Wakefield, Mass.
Telephone 245-5100

Triplett Electrical Instrument Co., Harmon Road, Bluffton, Ohio. Telephone 3231

Tri-R Instruments, 144-13 Jamaica Ave., Jamaica 35, N. Y. JAmaica 3-0041
(See advertisement on page 72)

Tri-Tronics Co., 2607 St. Charles Rd., Bellwood, Ill. LInden 4-7010

Tronex, Inc., G Street, Millville, N. J. TAylor 5-1750

Tropel, Inc., 52 West Avenue, Fairport, N. Y. LUdlow 6-7770

Trott Electronics, Inc., 412 Smith Street, Rochester 8, New York. HAmilton 6-0150

True-Flo Valve Co., Inc., 79 Bow Street, Everett 49, Mass. DUnkirk 7-2589

Tru-Ohm Products Div., Model Eng. & Mfg., Inc., 3426 W. Diversey Chicago 47, Ill. EVerglade 4-2646

Trygon Electronics, Inc., 111 Pleasant Ave., Roosevelt, L. I., N. Y. FR-8-2800

Tube Turns Plastics, Inc., 30th & Magazine Sts., Louisville 11, Ky. SPring 5-6431

Tucor Incorporated, 18 Marshall Street, So. Norwalk, Conn. TEmple 8-7591

Turbo Machine Co., Lansdale, Pa., ULysses 5-5131

Twin City Testing Corp., P. O. Box 95, 533 Niagara St., Tonawanda, N. Y., NX 3-6303

Tyco Semiconductor Corp., Hickory Lane-Bear Hill, Waltham 54, Mass. TW-9-2400

U

Ucinite Company, 459 Watertown Street, Newtonville 60, Mass. LA-7-8400

Uehling Instrument Co., 473 Getty Ave., Paterson 3, N. J. SHerwood 2-8710
(See advertisement on page 240)

Ulanet Company, George, 419 Market St., Newark, N. J.

Ultek Corp., 920 Commercial St., Palo Alto, Calif. DA-1-4117

Ultradyne, Inc., 2630 San Mateo, N. E., Albuquerque, N. Mex. AMherst 8-2431

Ultrasonic Industries Inc., Ames Court Engineers Hill, Plainview, L. I., N. Y. OVerbrook 1-2000
(See advertisement on page 192)

Ultra-Violet Products, Inc., 5114 Walnut Grove Ave., San Gabriel, Calif. CUmberland 3-3193

Ultronic Systems Corp., 7300 N. Crescent Blvd., Pennsauken, New Jersey (609) NOrmandy 3-0712
(See advertisement on page 88)

Ultronix, Inc., 111 East 20th Ave., San Mateo, Calif. FIreside 5-7921

Unertl Optical Co., John, 3551-55 East St., Pittsburgh 14, Pa. FA 1-2215
(See advertisement on page 132)

Ungar Electric Tools, Electronic Div. of Eldon Industries Inc., 4101 Redwood Ave., Los Angeles 66, Calif. EXmont 8-5718

Unholtz-Dickie Corp., 2994 Whitney Ave., Hamden 18, Conn. ATwater 8-3358
(See advertisement on page 85)

Rep—Kansas, Mo., Okla., Texas
Lawrence L. Hill Co.
1635 Garland, Wichita 1, Kansas
AMherst 7-3850

Uniflow Valve Corp., 49 Meeker Ave., Cranford, N. J. BRidge 6-8300

Uniform Tubes, Inc., Collegeville, Pa. HUxley 9-7276

Unilectron, Inc., 129 Binney St., Cambridge, Mass.
(See advertisement on page 60)

Unimax Switch Div., W. L. Maxson Corp., Ives Road, Wallingford, Conn.

Union Switch & Signal Div., Westinghouse Air Brake Co., Braddock Ave., Pittsburgh 18, Pa. CHurchill 2-5000

Unit Process Assemblies, Inc., 53-15 37th Ave. Woodside 77, N. Y. TW-9-9090

United Aero Products Corp., Columbus Rd., Burlington, N. J. DUdley 6-2900

United Aircraft Products, Inc., 1116 Bolander Ave., Dayton 8, Ohio. BAldwin 4-3841

United Control Corp., Overlake Ind. Park, P. O. Box 3104 Seattle 14, Wash. TUcker 5-3711

United Control Systems, Inc., 918 Woodley Rd., Dayton 3, Ohio CLearwater 5-3567

United Electric Controls Co., 85 School St. Dept. "O" .Watertown 72, Mass. WA 6-1000

United Electrodynamics, Inc., 200 Allendale Rd., Pasadena, Calif. MUrray 2-1134

United Engineers, Inc., 2139 So. Sheridan Rd. 29, Okla. LUther 5-1027

United Manufacturing Co. Div., W. L. Maxson Corp., 41 Haig St., Hamden 14, Conn. CH 8-4491

United Mineral & Chemical Corp., 16 Hudson St., New York 13, N. Y., BEekman 3-8870

United Products Co., 165 Franklin Ave., Nutley 10, New Jersey NO-7-3930

United Sensor & Control Corp., 122 Naubuc Ave., Glastonbury, Conn., ME 3-2867

United Shoe Machinery Corp., 140 Federal St., Boston 7, Mass. LIberty 2-9100

U. S. Components, Inc., 132 0 Zerega Ave., New York 62, N. Y. TAlmadge 4-1600

U. S. Controls Inc., 410 4th Ave., Brooklyn 15, N. Y., MA 4-7507

United States Dynamics 10 Dedham St., Newton Highlands 61, Mass. WOodward 9-9655

U. S. Electrical Mo'ors Inc., 200 E. Slauson Ave., Los Angeles 54, Calif. ADams 3-3131

U. S. Electronics Corp., 275 Warren St., Lyndhurst, N. J. GEneva 8-2400

U. S. Gauge Div., American Machine & Metals, Inc., Clymer Ave., Sellersville. Pa. ALpine 7-6531
(See advert.sement on page 45)

U. S. Gear Corp., 81 Bay State Rd., Wakefield, Mass. CRystal 6-4900

United States Instrument Corp., P. O. Box 1191, Charlottesville, Va. Telephone 3-5153

United States Motors Corp., 102 W. 5th Ave., Oshkosh, Wis. BEverley 1-4560

U. S. Nuclear 801 N. Lake St., Burbank, Calif. VI 9-6176

U. S. Radium Corp., Hanover Ave., Morristown N. J. JEfferson 9-4000

U. S. Semiconductor Products, Inc., 3540 W. Osborn Road, Phoenix, Ariz. BR-2-1341

U. S. Sonics Corp., 63 Rogers St., Cambridge 42, Mass. KIrkland 7-2502

U. S. Time Corp., Waterbury 20, Conn. PLaza 8-2444

U. S. Transistor Corporation, 149 Eileen Way, Syosset, L. I., N. Y. WAlnut 1-5800

United Transformer Corp., 150 Varick St., N. Y. 13, N. Y. ALgonquin 5-3500

Unitrode Transistor Products, Inc. 214 Calvary St., Waltham 54, Mass. TWinbrook 9-8988

Unitron Instrument Co., 66 Needham St., Newton Highlands 61, Mass., WOodward 9-8600

Unitron Ins'rument Div., United Scientific Co., 204-6 Milk St., Boston 9, Mass. HA-6-9878

Universal Drafting Machine Corp., 7960 Lorain Ave., Cleveland 2, Ohio. OL 1-4747

Universal Dynamics Corp., P. O. Box 6211, Arlington 6, Va. TEmple 6-7030

Universal Electronics Co., 1720-22nd St., Santa Monica, Calif. EXbrook 3-7707

Universal Mfg. Co. Inc., 1168-IC Grove St., Irvington 11, N. J. ESsex 4-9800

Universal Match Corp., Armament Div., P. O. Box 5841, St. Louis 21, Mo.

Universal Metal Hose Co., 2133 S. Keozie Ave., Chicago 23, Ill. BI-7-1100

Universal Relay Corp., 42 White Street, New York 13, N. Y. WA 5-9257
(See advertisement on page 176)

Universal Toroid Coil Winding Inc., 171-IC Colt St., Irvington 11, N. J. ESsex 4-9800

Universal X-Ray Products Inc., 1140 N. Western Ave., Chicago 22, Ill. ARmitage 6-4487

Uniwave, Inc., 109 Marine St., Farmingdale, N. Y. CHapel 9-8180

Utechnics, Inc., 4968 South State St., Murray, Utah.

V

Vaco Products Co., 317 E. Ontario St., Chicago 11, Ill. WH-4-2340

Vacuum Ceramics, Inc., E. Main St., Cary, Ill. MErcury 9-9192

Vacuum-Electronics Corp., Terminal Drive, Plainview, L. I., N. Y. OVerbrook 1-8300

Vacuum Instrument Corp., 2 Stepar Place, Huntington Station, N. Y. HAmilton 3-5520
(See advertisement on page 75)

Vacuum Research Co., 420 Market St., San Francisco 11, Calif. YU-2-3565

Vacuum Tube Products Div., Hughes Aircraft Co., 2020 Short St., Oceanside, Calif. SAratoga 2-2101

Valco, Inc., 1410 West Ave., Cincinnati 15, Ohio. Valley 1-9296

Valcor Engineering Corp., 365 Carnegie Ave., Kenilworth, N. J. CHestnut 5-1665

Vallorbs Jewel Company, P. O. Box 958, Lancaster, Pa. EX-2-3978

Valor Instruments, Inc., 13214 Crenshaw Blvd., Gardena, Calif. FAculty 1-2280 and DAvis 3-6160

Valpey Crystal Corp., 1244 Highland St., Holliston, Mass. GArden 9-4851
(See advertisement on pages 112, 162)

Valverde Laboratories, 252 Lafayette Street, New York 12, N. Y. WA-5-6742

Vanguard Instrument Corp., 20 W. Centennial Ave., Roosevelt, L. I., N. Y. FReeport 8-8070

Van Products Co., 5755 Swanville Road, Erie, Pa. TEmple 3-5556
(See advertisement on page 26)

Vanton Pump & Equipment, Div. Cooper Alloy Corp., 201 Sweetland Ave., Hillside, N. J., WA 6-2435.

Vap-Air Div. or Vapor Heating Corp., 6444 W. Howard St., Chicago 48, Ill., NEwcastle 1-9200

Vapor Heating Corp., 6420 W. Howard St., Chicago 48, Ill. NEwcastle 1-9200

Vapor Recovery Systems Company, 2820 North Alameda St., Compton, Calif. NEvada 6-1211

Varflex Corp., 512 W. Court St., Rome, N. Y. Telephone 7200

Varian Associates, 611 Hansen Way, Palo Alto, Calif. DAvenport 6-4000

Vari-L Co. Inc., 207 Greenwich Ave., Stamford, Conn. FIreside 8-0091

Varo Mfg. Co. Inc., 2201 Walnut St., Garland, Texas BRoadway 6-6141

Vector Electronic Co., 1100 Flower St., Glendale 1, Calif. CH 5-1076
(See advertisement on page 159)

Vector Manufacturing Co. ,5616 Lawndale Ave., (P. O. Box 18212), Houston 23, Texas WAlnut 6-8821

Vector Mfg., Co., Inc., Southampton, Pa., EL 7-7600

Veetrol Engineering Inc., P. O. Box 1089, Stamford, Conn., DAvis 4-4602
(See advertisement on page 120)

Vee-Arc Corp., 50 Milk St., Westboro, Mass. FOrest 6-4451

Veeco Vacuum Corp., 86 Denton Ave., New Hyde Park, L. I., N. Y. PIoneer 6-1161

Veeder-Root Inc., 70 Sargeant St., Hartford 2, Conn. JA 7-7201

Velan Valve Corp., 37 S. River, Plattsburg, N. Y.

Vemaline Products Co., 511 Commerce St., Franklin Lakes, N. J. FEderal 7-6200

Vent-Rak, Inc., Div. of General Devices, 525 S. Webster Ave., Indianapolis 19, Ind., FLeetwood 9-5407

Verdell Instrument Sales Co., P. O. Box 212, Burbank, Calif. THornwall 6-3309
(See advertisement at right)

Vermont Research Corp., P. O. Box 498, Springfield, Vt., TUrner 5-4595

Vernistat Division, Perkin-Elmer Corporation, 784 Main Avenue, Norwalk, Conn. VIctor 7-0411

Versa Products Co Inc., 150 Coolidge Ave., Englewood, N. J. LOwell 7-2820

Veristron, Inc., 6310 Chillum Place, N. W., Washington 11, D. C. TUckerman 2-8464

Vibrasonics Inc., 10 High St., Boston, Mass., HAncock 6-7866

Vickers Inc., A&E Center, Detroit 32, Mich. LIberty 9-1122

Vickers, Inc., Electric Products Div., 1815 Locust St., St. Louis 3, Mo. CEntral 1-5830

Vickery Company, 610-16th St., Oakland 12, Calif. GL-1-1160

Victor Adding Machine Co., Electronics Div., 3900 North Rockwell St., Chicago 18, Ill. KEystone 9-8210

Victor Animatograph Corp. a division of Kalart., Hultenius Street, Plainville, Conn. SHerwood 7-1663

Victor Equipment Co., 844 Folsom St., San Francisco 7, Calif. GArfield 1-3000

Victoreen Instrument Company, 5806 Hough Ave., Cleveland 3, Ohio Endicott 1-6200

Victory Electronics, Inc., 50 Bond St., Westbury, N. Y., EDgewood 4-8829

Victory Engineering Corp., Springfield Rd., Union, N. J. MUrdock 8-7150

Vidar Corp., 2296 Mora Dr., Mountain View, Calif. YOrkshire 8-6561
New England Representative
Instrument Dynamics, Inc.
11 Albion St., Wakefield, Mass.
Telephone 245-5100

Vidio Instruments Co., Inc., 3002 Pennsylvania Ave., Santa Monica, Calif., EXbrook 3-1244

Viking Copper Tube Co., 16700 St. Clair Ave., Cleveland 10, Ohio, IV 1-1180

Viking Industries, Inc., 21343 Roscoe Blvd., Canoga Park, Calif. DI-7-8500

Vinco Corp, 9111 Schaefer Hwy., Detroit 27, Mich. WEbster 3-4350

Vinson Engineering & Sales Corp., 8044 Woodley Ave., Van Nuys, Calif. TRiangle 3-3510

Virginia Electronics Co. Inc., 5204 River Road., Washington 16, D. C. OLiver 4-6680

Vitramon, Inc., P. O. Box 544, Bridgeport 1, Conn. AMherst 8-6261

Vitro Electronics, Div. of Vitro Corp., 919 Jesup-Blair Dr., Silver Spring, Md., JUniper 5-1000

Vogue Instrument Corp., 2350 Linden Blvd., Brooklyn 8, N. Y., NI 9-5300

Voi-Shan Electronics, 13259 Sherman Way, N. Hollywood, Calif. TRiangle 7-9952

Voland Corp., 27 Centre Ave., New Rochelle, N. Y. NE-6-2014

Voltron Products, 1020 S. Arroyo Pkwy., Pasadena, Calif.

Vought Camera Co., 8907 Melrose Ave., Los Angeles 46, Calif. CRestview 6-1131

Vulcan Rubber Products Div., Reeves Brothers, Inc., 1071 Ave. of the Americas, New York 18, N. Y. PE-6-8600

W

WE (see Westinghouse Electric)

W & W Mfg. Co., ICS Dep't 526 South Dearborn St., Chicago 5, Ill. HArrison 7-1535

Wabash Metal Products Co., Inc., Hydraulic Div., Box 305, 1569 Morris, Wabash, Ind. Telephone 583-584

Waber Electronics, Hancock & Somerset Sts. Philadelphia 33, Pa.

WacLine, Inc., Meter Dep't, S. St. Clair St., Dayton 2, Ohio. BAldwin 8-5161

Wakefield Engineering, Inc., 414 Main St., Wakefield, Mass., 245-5900

Waldom Electronics Inc., 4625 W. 53rd St., Chicago 32, Ill. LUdlow 5-1212

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Walkirt Co., 141 W. Hazel St., Inglewood 3, Calif., ORegon 8-4814

Wall Colmonoy Corp., 19345 John R., Detroit 3, Mich. TWinbrook 3-3800

Wallace & Tiernan, Inc., 25 Main St., Belleville 9, N. J. PLymouth 9-8000
(See advertisement on page 47)

Walser Automatic Timer Corp., 420 Lexington Ave., New York 17, N. Y. LEx 2-9774

Waltham Electronics Corp., 751 Main St., Waltham 54, Mass., TW 4-7810-7811

Waltham Horological Corp., 400 Lynnway, Lynn, Mass.

Waltham Precision Instrument Co., 221 Crescent St., Waltham 54, Mass. TWinbrook 3-4000

Wang Laboratories, Inc., 37 Hurley St., Cambridge 41, Mass. UNiversity 4-8380

Warco Industries, Inc., 6625 Delmar Blvd., St. Louis 30, Mo. PArkview 7-7622

Ward Leonard Electric Co., 115 MacQuesten Pkwy. South, Mt. Vernon, N. Y. MO 4-1000

Warner Electric Brake & Clutch Co., Beloit, Wis. DUnkirk 9-2211

Warner & Swasey Co., Control Instr. Div., 34 W. 33rd St., New York 1, N. Y. LAckawanna 4-1536

Warren Automatic Controls Corp., Rt. 24, Broadway N. J., 689-1400

Warren Components, Div. of El-Tronics, Inc., S. Irvine, Warren, Penna., RAndolph 3-6200

Warren Mfg. Co., Inc., Littleton, Mass. HUnter 6-3511

Warren Transformer Co., Inc., 103 Warren St., Tunkhannock, Penna. TErrace 6-8411

Warren Wire Co., Pownal, Vt., VAlley 3-7321

Warren-Knight Co., 136 N. 12th St., Philadelphia 7, Pa. LOcust 7-3984

Warrick Co., Chas. F., 1951 W. Eleven Mile Rd., Berkley, M.ch. JOrdan 4-6667
(See advertisement on page 36)

Warrick Co., Frederick P. 6732 Dixie Hwy., Clarkston, Mich. MAple 5-7821

Warwick Products, Co., 7909 Rockside Rd., Cleveland 31, Ohio.

Waterman Products Co., Inc., 2445 Emerald St., Philadelphia 25, Pa. GArfield 6-8600

Waters Associates, 45 Franklin St., Framingham, Mass. TRinity 2-6528

SALES REPRESENTATIVES

CLEVELAND 21, OHIO
Kurt J. Lesker Co.
211 S. Green Rd. Tel: 382-6170

DENVER 2, COLORADO
E. N. Murray Company
1531 Denver Club Bldg. ALpine 5-7806

FULLERTON, CALIFORNIA
Applied Instruments
P. O. Box 242. KEystone 5-6551

HOUSTON 5, TEXAS
R. Mack Goble Company
2722 Sunset Blvd. MOhawk 4-1922

LOS ANGELES 44, CALIFORNIA
Bogart-Bullock Corp.
6010 S. Normandie Ave. PLeasant 1-4173

MOBILE, ALABAMA
Alabama Control Company
P. O. Box 8086. Tel: 342-5226

MONTREAL 11, P.Q., CANADA
Electrodesign Ltd.
9124 St. Lawrence Blvd. DUpont 9-5914

NEWARK 2, NEW JERSEY
G. E. Stackhouse
1180 Raymond Blvd. MA 4-4030

PHILADELPHIA, PENNSYLVANIA
G. E. Stackhouse
1418 Walnut St. RE 5-3520

PITTSBURGH 27, PENNSYLVANIA
Kurt J. Lesker Company
4535 Veman Ave. TUxedo 1-4666

SEATTLE 4, WASHINGTON
Scientific Supplies Company
600 Spokane St. MU 2-3460

TULSA, OKLAHOMA
Hess Company
4406 E. 58th Pl. RI 2-8627

WHEATON, ILLINOIS
Thomson and Company
P. O. Box 89. Tel: 665-2010

Waters Corp., P. O. Box 529, 18 Fourteenth St., S. W., Rochester, Minn., ATlas 2-3866

Waters Manufacturing, Inc., Boston Post Road, Wayland, Mass. ELmwood 8-2777

Watkins-Johnson Co., 3333 Hillview Avenue, Palo Alto, Calif. DAvenport 6-8830

Watts Regulator Co., 10 Embankment St., Lawrence, Mass. MUrdoch 2-5277

Waugh Engineering Div., The Foxboro Company, 7740 Lemona Ave., Van Nuys, Calif. STate 2-1710
(See advertisement on page 32)

Waukee Engineering Co., Inc., 5136 North 35th St., Milwaukee 9, Wis. UPtown 1-5413

Waukesha Motor Co., St. Paul Ave., Waukesha, Wis. LIberty 7-3311

Waveforms, Inc., 333 6th Ave., New York 14, N. Y. WA-9-2795

Waveline, Inc., P. O. Box 718, Passaic Ave., W. Caldwell, N. J. CApital 6-9100

Wayne-George Corp., 588 Commonwealth Avenue, Boston, Mass. CO-7-8425

Weatherhead Co., 300 E. 131st St., Cleveland 8, Ohio GLenville 1-5200

Webber Mfg. Co., Inc., P. O. Box 217, Indianapolis 6, Ind. MElrose 2-1378

Webcor Inc., 816 N. Kedzie Ave., Chicago 51, Ill., NE 2-3425

Weber Instrument, Inc., 11856 Mississippi Ave., Los Angeles 25, Calif. GRanite 9-6770

Weckesser Co., 5701 Northwest Highway, Chicago 46, Ill. ROdney 3-6688 TWX CG 3015
(See advertisement on page 195)

Weighing & Controls Inc., Industrial Park, E. County Line Rd. Hatboro, Penna., OSborne 5-0901
(See advertisement on page 36)

Weinschel Engineering, 10503 Metropolitan Ave., Kensington Md. LOckwood 4-0122

Weiss & Son, Inc., Albert A., 263 Vanderbilt Ave., Brooklyn 5, N. Y. NE 8-0777

Weksler Instruments Corp., 195 E. Merrick Rd., Freeport, L. I., N. Y. MAyfair 3-0100
(See advertisement on pages 68, 69)

Welch Electric Co., 1221 Wade St., Cincinnati 14, Ohio. MAin 1-7122

Welch Manufacturing Co., W. M. 1515 Sedgwick St., Chicago 10, Ill. MIchigan 2-2000

Weldmatic Div. of Unitek Corp., 950 Royal Oaks Drive, Monrovia, Calif. ELliot 9-8361

Weller Electric Corp., 601 Stone's Crossing Rd., Easton, Pa. BLackburn 3-3521

Wells Electronics Co., 1701 S. Main St., South Bend 23, Ind. AT-8-4651

Wells Industries Corp., 6880 Troost Ave., North Hollywood, Calif.,

West Coast Electrical Mfg. Co., 233 West 116th Place, Los Angeles 61, Calif., PLymouth 5-1138

West Instrument Corp., 4363 W. Montrose Ave., Chicago 41, Ill. AVenue 6-1007
(See advertisement on page 67)

Rep—Central & Eastern Michigan
Industrial Temperature Control Co.
2210 North York St., Dearborn, Mich.
CRestwood 8-2210

Westamp, Inc., 11277 Massachusetts Ave., Los Angeles 25, Calif. GR 88894

Westberg Mfg. Co., Box 239, Napa, Calif. BAldwin 6-5218

Western Apparatus Co., Div., of Comptometer Corp., 5600 W. Jarvis Ave., Chicago 48, Ill. UNiversity 9-9560

Western Design & Electronics Div. of U. S. Industries, Inc., Santa Barbara Airport, Goleta, Calif. WOodland 7-4571

Western Devices, Inc., 600 W. Florence Ave., Inglewood Calif.

Western Electronic Products Co., 2420 No. Lake Ave., Altadena, Calif. SYcamore 4-6379

Western Gear Corp., Electro Products Div., 132 W. Colorado St., Pasadena, Calif. BR-2-6489

Western Gold & Platinum Co., 525 Harbor Blvd., Belmont, Calif., LY 3-3121

Western Insulated Wire Co., 2425 E. 30th St., Los Angeles 58, Calif. LUdlow 7-7103

Western International Co., 45 Vesey St., New York 7, N. Y. DIgby 9-2275

Western Radiation Laboratory, 1107 W. 24th St., Los Angeles 7, Calif. RIchmond 7-8355

Western Ski Ind., 21301 Cloud Way, Hayward, Calif., JE 7-1334

Western Transistor Corp., 13021 S. Budlong St., Gardena, Calif., FAculty 1-5741

Westinghouse Air Brake Co., Industrial Products Div., P. O. Box 36, Wilmerding, Pa. BRandywine 1-1490

Westinghouse Electric Corp., P. O. Box 2278, Pittsburg 30, Pa. 3 Gateway Center

Westinghouse Electric Corp., Director Systems Dept., 356 Collins Ave., Pittsburgh 6, Pa. EM 2-2500

Westinghouse Electric Corp., Electronic Tube Div., P. O. Box 284, Elmira, N. Y. RE-9-3611

Westinghouse Electric Corp., General Purpose Control Dep't, 4454 Genesse St., Buffalo 5, N. Y. PL-1500

Westinghouse Electric Corp., Instrument & Control Systems, Newark 1, N. J. HUmboldt 4-3000

Westinghouse Electric Corp., Lamp Div., MacArthur Ave., Bloomfield 7 N. J. HUmboldt 4-3000

Westinghouse Electric Corp., Nuclear & Power Control Dept., 700 Braddock Ave., East Pittsburgh, Pa. EXpress 1-2800

Westinghouse Electric Corp., Semiconductor Dept., Youngwood, Pa. WA 5-7272

Westline Products Div. of Western Lithograph Co., 600 E. 2nd St., Los Angeles 54, Calif. MAdison 7-2641

Weston Hydraulics Ltd., Sub. of Borg-Warner Corp., 7500 Tyrone Ave., Van Nuys, TRiangle 3-4340

Westronics, Inc., 3605 McCart St., Ft. Worth, Texas, WA 3-8211

Wheelco Industrial Instruments Division, Barber-Colman Co., 1300 Rock, Rockford, Ill. WO-8-6833

Wheeler Electronic Corp., Subsidiary of Sperry Rand Corp., 150 E. Aurora St., Waterbury 20, Conn. PLaza 4-5191

Wheeler Manufacturing Co., C. H., 19th & Lehigh Ave., Philadelphia 32, Pa. BAldwin 8-6500

Wheelock Signals, Inc., 273 Branchport Ave., Long Branch, N. J. Capital 2-6880

White Avionics Corp., Terminal Drive, Plainview, N. Y. WElls 5-5511

White Dental Mfg. Co., S. S., Industrial Div., 10 East 40th St., New York 16, N. Y. MU-3-3015

White Instrument Laboratories, P. O. Box 9006, Allandale Station, Austin 17, Tex. GLendale 3-8447

Whitey Research Tool Co., 5525 Marshall, Oakland 8, Calif.

Whitney Blake Co., 1537 Dixwell Ave., New Haven 14, Conn. CHestnut 8-5515

Whittaker Gyro, Div. of Telecomputing Corp., 16217 Lindberg St., Van Nuys, Calif., TRiangle 3-1950

Wiancko Engineering Co., 255 Halstead Ave., Pasadena, Calif. EL 5-7186

Wickes Engineering & Construction Company, 12th St. & Ferry Ave., Camden 4, N. J. WOodlawn 4-4912

Wiedemann Machine Co., Testing Equipment Dept. King of Prussia, Pa. MU 8-6625

Wilcolator, 1001 Newark Ave., Elizabeth, N. J. ELizabeth 4-1000

Wilkerson Corp., 1244 W. Mansfield Ave., Englewood, Colo. SUnset 1-7801
(See advertisement on page 16)

Rep—So. Ohio, So. Indiana, Kentucky
The Isaacs Co.
595 E. Galbraith Rd., Cincinnati 15. Tel: 761-8855
2676 Salem Ave., Dayton 6, Ohio. CR 5-6141

Will Corporation, 39 Russell St., Rochester 3, N. Y. BRowning 1-8200

Williams & Co., C. K., 640 N. 13th St., Easton, Pa. BLackburn 3-6261

Williams Apparatus Co., Inc., Herald Bldg., Watertown, N. Y. SU 2-3420

Williamson Development Co., Inc., 317 Main St. West Concord, Mass. EMerson 9-9607

Wilmad Glass Co, Inc., Rte. 40 & Oak Rd., Buena, New Jersey OXford 2-6000

Wilmington Fibre Specialty Co., New Castle, Del. EAst 8-7525

Wilrite Products, Inc., 3835 West 150th St., Cleveland 11, Ohio, CLearwater 2-1810

Wilson & Co., G. C., 1915 8th Ave., Huntington W. Va. JA 3-5149

Wilson Mechanical Instrument Div., American Chain & Cable Co., Inc., 230 Park Ave., New York 17, N. Y.

Wiltron Co. 717 Loma Verde Ave., Palo Atlo, Calif., DAvenport 1-7428

Wincharger Corp., East 7th & Division Sts., Sioux City 2, Iowa 2-1844

Winchester Electronics, Inc., Willard Road, Norwalk, Conn. VIctor 7-7231

Winslow Electronics Inc., 1005 First Ave., Ashbury Park, N. J. MUrdock 8-0020

Winston Electronics, 1128 Madison Ave., Patterson, New Jersey NE-3-2505

Wintronics, 213 S. Hawthorne Blvd., Hawthorne, Calif., OSborne 5-1464

Wollensak Optical Co., 850 Hudson Ave., Rochester 22, N. Y. COngress 6-1000

Wood Electric Co., Inc., 244 Broad St., Lynn Mass. LY-8-5313

Wood Counter Laboratory, N Inc., 1525 E. 53rd St., Chicago 15, Ill. FAirfax 4-1114

Worcester Valve Co., Inc., Worcester 10, Mass.

Worden Labs., 695 Rocky River Rd., Houston 27, Tex. MA-3-5177

Worley Jewel Co., John, North Falmouth, Mass. LOcust 3-3972
(See advertisement on page 166)

Worner Electronic Devices, 10 Main St., Rankin, 1, Ill. EXport 7-4555

Wright Equipment Corporation Lukach Court, Milltown, N. J.

Wright Machinery Co. Div., Sperry Rand Corp., Calvin and Holloway Sts., Durham, N. C. Telephone 2-8161

Wrisley Engineering, Inc., 18 Ware Rd., Winchester, Mass., PArkview 9-4516

Wurlitzer Co., Niagara Falls Blvd., North Tonawanda, N. Y. LUdlow 2500

Wyco Metal Products, 6918 Beck Ave., North Hollywood, Calif., TRiangle 7-1316

Wyle Laboratories 125 Maryland St., El Segundo, Calif. Eastgate 2-1763

X

X-Acto, Inc., Handicraft Tools Div., 48-41 Van Dam St., Long Island City 1, N. Y., EXeter 2-3333

Xerox Corp., P. O. Box 1540, Rochester 3, N. Y. GL-8-8800

Y

Yardney Electric Corp., 40-50 Leonard St., New York 13, N. Y. WOrth 6-3100

Yarnall-Waring, 102 E. Mermaid Lane, Philadelphia 18, Pa. CH-8-2600

Yellow Springs Instrument Co., P. O. Box 106, Yellow Springs, Ohio. ROckwell 7-7242

Yokogawa Electric Works, Inc., 40 Worth St., New York 13, N. Y. BEeckman 3-6720
(See advertisement on page 125)

Z

Zagora Gear Products Inc., 1327 S. Mint St., Box 3367, Charlotte 3, N. C. ED-3-7111

Zeiss, Inc., Carl, 485 Fifth Ave., New York 17, N. Y.
(See advertisement on pages 133, 144)

Zeks Industries, Inc., West Chester Pike & Providence Rd., Edgemont, Pa., ELgin 6-6038
(See advertisement on page 16)

Zenith Electric Co., 152 W. Walton St., Chicago 10, Ill. MI-2-3322
(See advertisement on page 75)

Zenith Mfg. & Chemical Corp., 82 Beekman St., New York 38, N. Y. WOrth 2-5787

Zenith Optical Laboratory, 75 Main St. Dobbs Ferry, New York. Amityville 4-4616

Zenith Radio Research Corp., 4040 Campbell Ave., Menlo Park, Calif. DAvenport 3-0082

Zernickow Co., O., 15 Park Row, New York 38, N. Y. BArclay 7-2264
(See advertisement on page 58)

Zero-Max Co., 1900 Lyndale Ave., So., Minneapolis 5, Minn. FRanklin 4-5520

Zippertubing Co., 752 S. San Pedro St., Los Angeles 14, Calif. MAdison 4-6664

Zirconium Corp of America, 31501 Solon Rd., Solon 39, Ohio, CHurchill 8-6191

Zoomar, Inc., 55 Sea Cliff Ave., Glen Cove, L. I., N. Y. ORiole 6-1900

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Ace Scientific Supply Co., Inc. 1420 Linden Ave., E. Linden, N. J.

A. S. Aloe Company 5655 Kingsbury Blvd. St. Louis 12, Mo.

American Hospital Supply Corp. 1210 Leon Place Evanston, Ill.

Berge, Inc., J. & H., 145 Hudson St. New York 13, N. Y.

Boder Scientific Co. 810-814 Penn Ave. Pittsburgh 22, Pa.

Burrell Corporation 2223 Fifth Ave. Pittsburgh 19, Pa.

Cardinal Products, Inc. P. O. Box 1611 Durham, North Carolina

Central Scientific Co. 1700 Irving Park Road Chicago 13, Ill.

Chemical Rubber Co., 2310 Superior, East, Cleveland 14, Ohio

Chicago Apparatus Co., 1735 N. Ashland Ave., Chicago 22, Ill.

Chicago Apparatus Company 1827 McGee St. Kansas City 8, Mo.

Clay-Adams Company, Inc. 141 East 25th St. New York, N. Y.

Curtin & Co., W. H., P. O. Box 118, Houston, Texas

Daigger & Co., A., 159 W. Kinzie St. Chicago 10, Ill.

Denver Fire Clay Co. Box 5510, Terminal Annex Denver 17, Colo.

Eastern Scientific Co. 267 Plain St. Providence 3, R. I.

Eaton-Dikeman Co. Mt. Holly Springs, Pennsylvania

Eberbach Corp. 200 E. Liberty St. Ann Arbor, Mich.

C. M. Fassett Co. N. 314 Hogan St. Spokane 24, Wash.

Fisher Scientific Co. 717 Forbes St. Pittsburgh 19, Pa.

Adolf Frese Corp. 1420 Grande Vista Ave. Los Angeles 23, Calif.

General Biological Supply House, Inc. 8200 South Hoyne Chicago 20, Ill.

General Laboratory Supply Co. Box 2607 Paterson, N. J.

General Surgical Supply Co. P. O. Box 252 Birmingham 1, Ala.

Goetze-Niemer Co. 208 N. 8th St. St. Joseph 1, Mo.

Emil Greiner Co. 20-26 N. Moore St. New York 13, N. Y.

Harshaw Chemical Co. 1945 E. 97th St. Cleveland 6, Ohio

Heil Scientific, Inc. 214 South 4th St. St. Louis 2, Mo.

Howe & French, Inc., 99 Broad St., Boston 10, Mass.

Industrial Scientific, Inc. 1910 Shotts St. Fort Worth, Texas

Kansas City Laboratory Supply Co., 307 Westport Road Kansas City 11, Mo.

K & L Scientific Co. 230 N. Front St. Columbus 16, Ohio

LaPine & Co., Arthur S., 6001 South Knox Ave. Chicago 29, Ill.

Macalaster Bicknell Co. 243 Broadway at Windsor St. Cambridge 39, Mass.

Mahady Co., E. F. 225 Msgr. O'Brien Hwy. Cambridge 41, Mass.

Mine & Smelter Supply Co. 3800 Race St., P. O. Box 9041 Denver 16, Colo.

Nashville Surgical Supply Co. 401 Church St. Nashville 3, Tenn.

N. Y. Laboratory Supply Co., Inc., 76 Varick St., New York 13, N. Y.

New York Scientific Supply Co., 28 W. 30th St., New York 1, N. Y.

Nolge Co., Inc. P. O. Box 365 Rochester 2, N. Y.

Palo Lab. Supplies, Inc. 81 Reade St., New York 7, N. Y.

Para Laboratory Supply Co. 4th & Spruce Sts. Trenton 8, N. J.

Pfaltz & Bauer, Inc. 350—5th Avenue New York 1, New York

Phipps & Bird, Inc. 6th & Byrd Sts. Richmond 19, Va.

Physicians & Hospitals Supply Co. 1400 Harmon Place Minneapolis 3, Minn.

Preiser Co., Inc., B., 416 W. Washington St., Charleston 2, W. Va.

Rascher & Betzold, Inc. 730 N. Franklin St. Chicago 10, Ill.

Rigby Scientific Co. 5649 Alexis Road Toledo 13, Ohio

Roemer-Karrer, Inc. 810 N. Plankinton Ave. Milwaukee 3, Wisc.

Sargent & Co., E. H., 4647 W. Foster Ave. Chicago 30, Ill.

Schaar & Co. 7300 W. Montrose Ave. Chicago 34, Ill.

Scientific Equipment Co. 3527 Lancaster Ave. Philadelphia 4, Pa.

Scientific Glass Apparatus Co., Inc. 100 Lakewood Terrace Bloomfield, N. J.

Scientific Laboratory Supply Co. 139 Forrest Ave., N. E. Atlanta 3, Ga.

Standard Scientific Supply Corp. 808 Broadway New York 3, N. Y.

Stansi Scientific Co. 1231 N. Honore St. Chicago 22, Ill.

Stoelting Co., C. H., 414 N. Homan Ave. Chicago 24, Illinois

Thomas Co., Arthur H., West Washington Square Philadelphia 5, Pa.

U. S. Scientific Supply Co. 1394 Flatbush Ave. Brooklyn 10, N. Y.

University Apparatus Co. 2229 McGee St. Berkeley, Calif.

Van Waters & Rogers Co., Braun Chem. Div. 1363 S. Bonnie Beach Place Los Angeles 54, Calif.

Van Waters & Rogers Co., Braun-Knecht-Heiman 1400—16th St. San Francisco 19, Calif.

Van Waters & Rogers Co., Sc. Supp. Co. Div. 600 Spokane St. Seattle 4, Wash.

Walker & Co., Inc., George T., 2218 University Ave., S. E. Minneapolis 14, Minn.

Welch Mfg. Co., W. M., 1515 Sedgwick St. Chicago 10, Ill.

Wilkens-Anderson Co., 4525 W. Division St., Chicago 51, Ill.

Will Corp. Box 1050 Rochester 3, N. Y.

Williams, Brown & Earle, Inc. 904 Chestnut St. Philadelphia 7, Pa.

Wisconsin Science Supply Co. 1419 Underwood Ave. Milwaukee 13, Wisc.

For Your Library

Control Valves $2.00

by C. S. Beard. New "one-book" reference on control valves . . . covers flow characteristics; mechanical features; valve capacity; sizing; body types; positioners; actuators, including d-c, electrohydraulic and gas hydraulic actuators. Numerous tables and illustrations. Paperbound, 236 pages, 1960 (revised edition).

Regulators and Relief Valves $2.00

by Chester S. Beard and Fred D. Marton. Covers regulators for pressure, vacuum, flow, temperature, level, gas systems, and pump discharge. Also safety, relief, and safety-relief valves; and automatic emergency valves, including shut-off valves for oil and gas transmission lines. Paper, 204 pages, illustrated, 1959.

Strain Gage Instrumentation $2.00

edited by Aronson and Nelson " . . . a practical text . . . covers fundamentals, basic bridge circuits, typical applications, and surveys typical commercial instruments which use or are used with strain gages." Paper, 110 pages, illustrated, indexed by company, author, and subject, 1958.

Electronic Circuitry for Instruments and Equipment $2.00

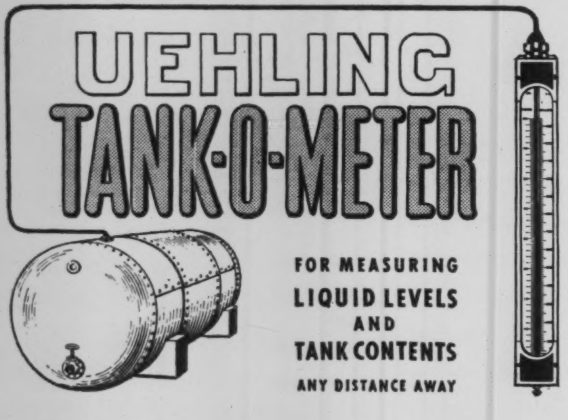
by M. H. Aronson. "Comprehensive source book on instrumental circuitry" this complete home-study text includes 458 multiple-choice questions (and answers). 215 illustrations, 10 tables, comprehensive index. Paperbound, 324 pages, 1957 (revised edition).

Instruments Publishing Co.

845 Ridge Ave., Pittsburgh 12, Pa.

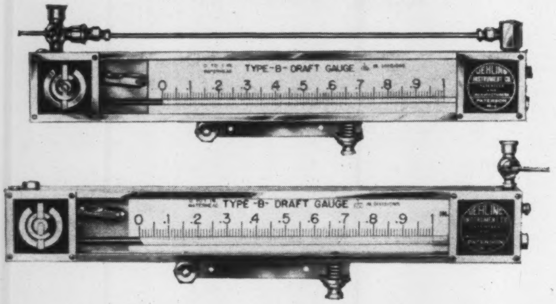
UEHLING INSTRUMENT COMPANY

465 Getty Avenue, Paterson 3, New Jersey
Recording, Indicating and Control Apparatus



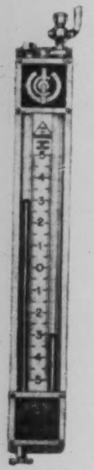
TANK-O-METERS may be applied to the measurement of ACIDS, ALKALIES, WATER, OIL, GASOLINE, ALCOHOL, BEVERAGES, TAR, MOLASSES, MILK, PAINTS, VARNISHES, SODIUM SILICATE, SOLVENTS, OR ANY OTHER CHEMICAL SOLUTION. *Send for Bulletin No.* 945.

INCLINED DRAFT GAUGES
For Plus or Minus Pressure
For Differential Pressure



The Uehling Draft Gauges are available with scales from 10″ to 70″ and waterheads ranging from 1″ to 14″. Scales are graduated for every 1/100″ of waterhead. Each instrument is housed in a durable aluminum case with glass front and adjustable scale. They are extremely accurate as each instrument is individually calibrated. Furnished for draft, pressure, or differential pressure. *Send for Bulletin* 1146.

U-TUBES (STRAIGHT TUBE TYPE)



Uehling U-Tube Pressure and Vacuum Gauges consist of straight Pyrex tubes with a bottom metal connecting base, housed in aluminum case with glass front.

Each instrument has an external micrometer scale adjustment, zero check cock, and drain valve.

Scale lengths from 10″ to 100″.

Four indicating fluids.

Special calibration on request.

Send for Bulletin 828.

TEL-FLO METER

TEL-FLO
METER
MODEL A
UEHLING
INSTRUMENT
COMPANY

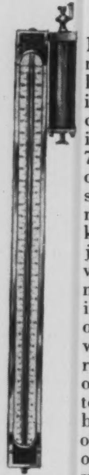
For measuring flow rates and purging line. Are accurate, exceptionally durable, and attractive. Housed in aluminum case with plastic front to protect graduated glass tube. Can be furnished in aluminum, brass, or stainless steel bodies (or any other metal). Suitable for maximum pressures of 300 lbs. Higher pressures upon request. Furnished with or without control valve and with either top, side, or back connection.

Send for Bulletin 553.

SPECIAL TANK-O-METERS

For fuming liquids, such as hydrochloric acid, nitric acid, propane, butane, ammonia, ethyl chloride, etc.

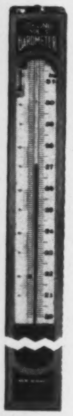
PRESSURE AND VACUUM GAUGES



Meet the most exacting requirements and combine accuracy, reliability, simplicity and durability. Housed in durable Aluminum cases with glass fronts. Standard instruments covers ranges of 7″ to 100″ of mercury. A catch-all for trapping visibly shows any condensate in the connecting line. Each scale has a knurled micrometer screw adjustment. A simple means is provided for cleaning the Pyrex manometer. May be calibrated in any desired units for pressure or vacuum and may be provided with a plus or minus scale to read either vacuum or pressure on the same instrument. Length to suit any range. Greater flexibility is made possible by choice of either mercury or one of three other indicating fluids. ***Furnished with stainless steel or brass wells, depending upon indicating fluid used.***

Send for Bulletin 147.

MERCURIAL BAROMETERS



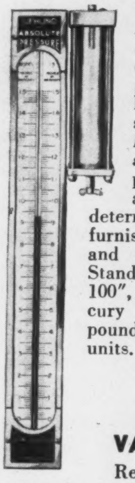
Furnished with a stainless steel well with a scale range of 20″ to 31″ of mercury graduated for every 1/10″, with external vernier scale adjustment which provides readings of .01 of an inch of mercury throughout the range of 20″ to 31″ of mercury, or with a scale range of 500 to 780 millimeters of mercury graduated for every 1 millimeter with external vernier scale adjustment, which provides readings of .1 millimeter of mercury.

It can be furnished for flush mounting or surface mounting with or without oak panel board.

Send for Print 160.

CIRCLE 380 ON READER-SERVICE CARD

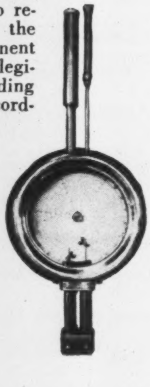
MERCURY COLUMN ABSOLUTE PRESSURE INDICATORS



Uehling Mercury Column Absolute Pressure Gauges are designed for exacting requirements of modern engineering practice, and combine accuracy, reliability, simplicity, and durability. ***Furnished with stainless steel well.*** Used with all processes where extremely accurate absolute pressure determinations are essential. Can furnish catch-all for trapping and showing any condensate. Standard scale lengths of 7″ to 100″, graduated in 1/10″ of mercury absolute pressure or in pounds or in equivalent metric units.

Send for Bulletin 247.

COMBINED BAROMETER AND VACUUM RECORDER

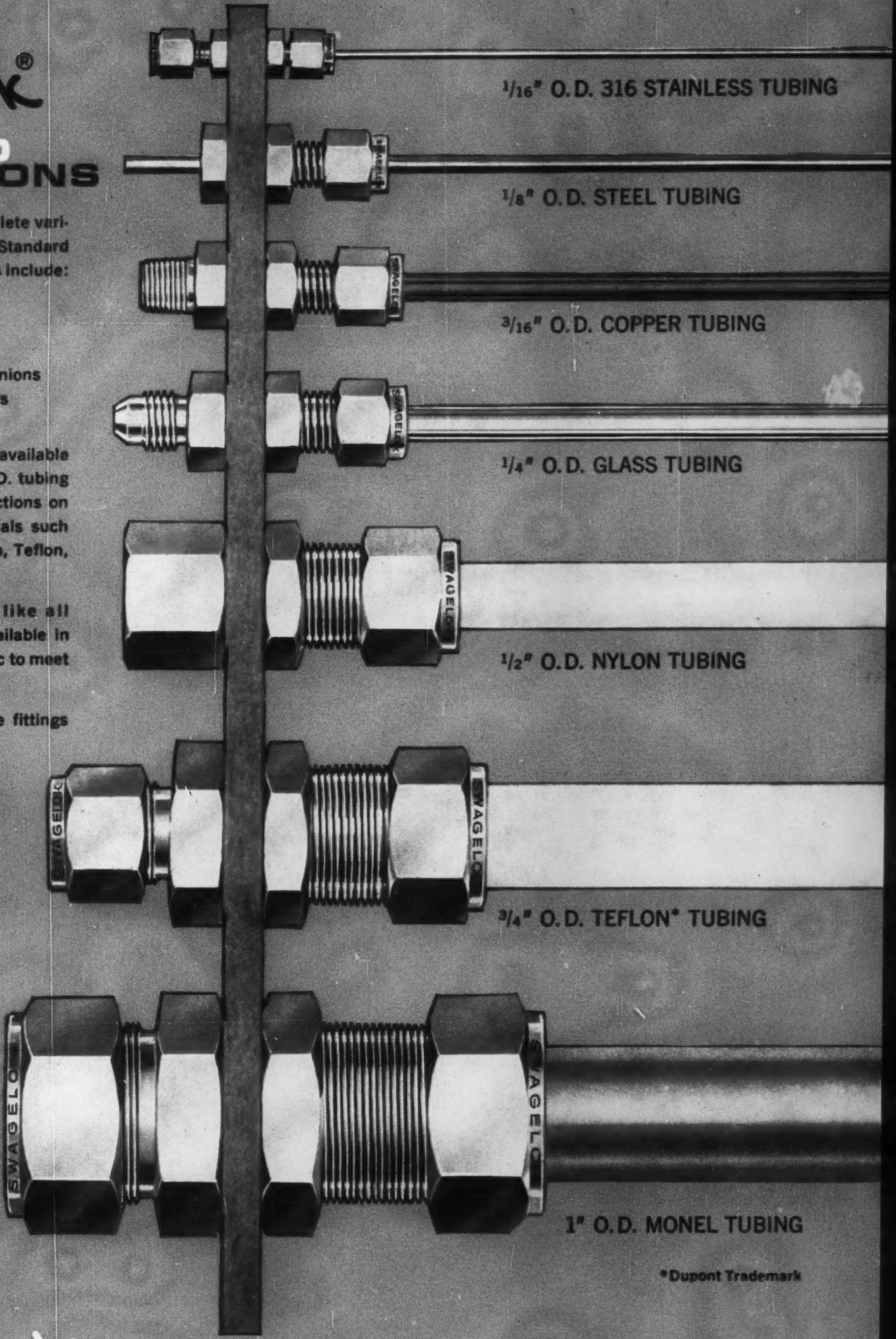


Records barometric pressure and vacuum on same chart. Distance between the two recorded lines represents the absolute pressure. Permanent accuracy and remarkable legibility are the outstanding characteristics of this recorder. Accuracy is obtained by the employment of the mercury column principle and consequently this recorder has the same high degree of accuracy as the mercury column indicator. It employs no springs, diaphragms, or multiplying levers, therefore holds its calibration permanently without readjustment.

Send for Bulletin 150.

UEHLING VACUUM RECORDER

Same as above, without barometric pen.
Send for Bulletin 140.


1/16" O.D. 316 STAINLESS TUBING
1/8" O.D. STEEL TUBING
3/16" O.D. COPPER TUBING
1/4" O.D. GLASS TUBING
1/2" O.D. NYLON TUBING
3/4" O.D. TEFLON* TUBING
1" O.D. MONEL TUBING

Swagelok®

BULKHEAD CONNECTIONS

Only Swagelok has such a complete variety of Bulkhead Tube Fittings. Standard Swagelok Bulkhead Tube Fittings include:

- Bulkhead Unions
- Bulkhead Adapters
- Bulkhead Male Connectors
- Bulkhead Swagelok to AN Unions
- Bulkhead Female Connectors
- Bulkhead Reducing Unions

Swagelok Bulkhead Fittings are available in sizes for 1/16" through 1" O.D. tubing and can make leak tight connections on a wide variety of tubing materials such as stainless steel, monel, Nylon, Teflon, glass, copper, steel, etc.

Swagelok Bulkhead Fittings, like all Swagelok Tube Fittings, are available in any machineable metal or plastic to meet your particular requirements.

Remember, whether you require fittings for the simplest application or the most demanding, whether it is unusual tubing material, unusual fitting material or unusual fitting types, Swagelok Tube Fittings solve your problem.

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Erie
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